Interaction and Conflicts in Wood Supply and Policy Measures

Experience from Vienna-Simmering and other ÖBf supplied CHPs

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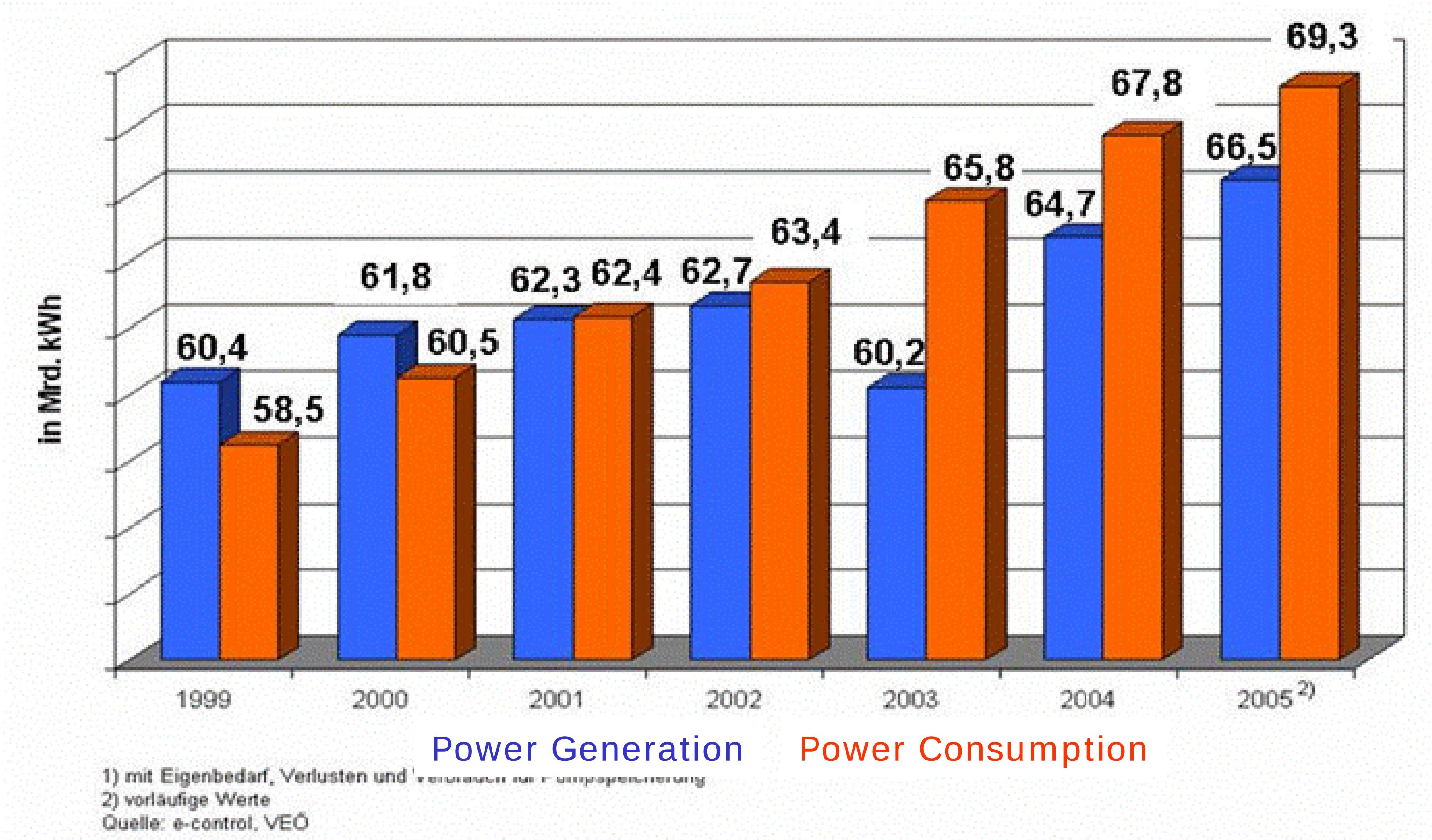
- **Institutional Setup** *(Energy industry, communes, NGOs, other forest owners, governments,,...)*
- **The dual role of Österreichische Bundesforste in the case of the biomass cogeneration in Austria, esp. in Simmering and in connection with the daughter company SWH** *(Strom und Wärme aus Holz –power and heat from wood)*
  - Main role as supplier of wood
  - Management partner in planning and operation of CHPs
- **Role of subsidies and policies**
- **Lessons learned**

Power Generation and Consumption in Austria

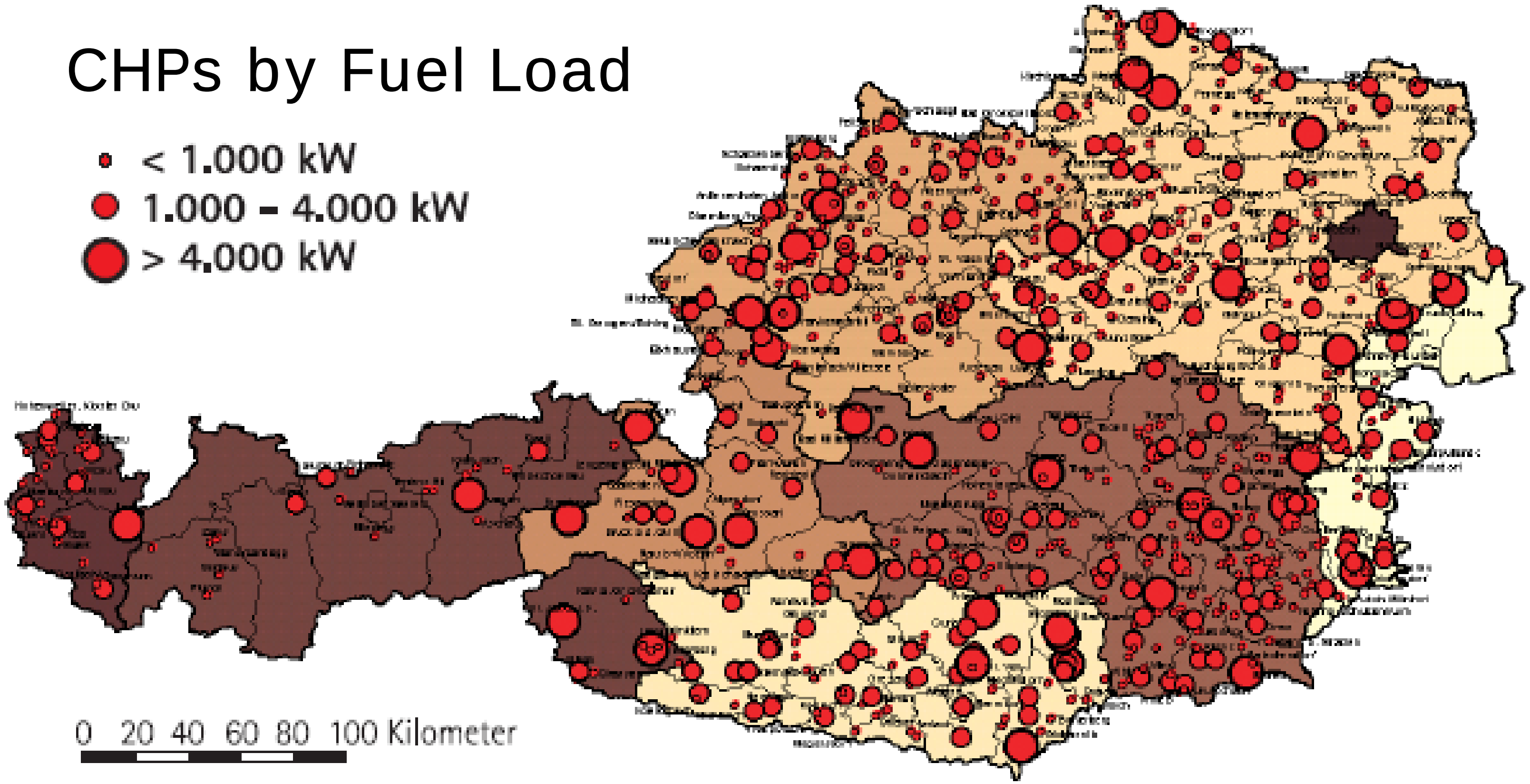


Quelle: E-control, VEÖ 2006

Economic Situation for Green CHP

- **Green Electricity Act 2002 (Ökostromgesetz 2002)**
- **Ordinance concerning feed in tariff (Ökostromtarif)**
- **Condition precedent to obtain the feed in tariff of 10.2 €c/ kWh for a period of 13 years:**
  - permission until 31.12.2004
  - starting until 30.06.2006
    (amendment 2005: until 31.12.2007)
- **Staggered tariffs according to CHP Size (16 €c for < 2MW…)**

Distribituion of Biomass Plants in Austria



Source: Landwirtschaftskammer NÖ, Österreichische Energieagentur Stand: 2005

Biomass Plants in Austria by Size

State	< 500 kW	500 - 1000 kW	1.000 kW - 5.000 kW	> 5.000 kW	Total
BGLD	13	16	20	1	50
KTN	36	11	35	5	87
NÖ	126	40	65	8	239
OÖ	112	36	46	5	199
SBG	58	10	19	6	93
STK	125	52	58	4	239
TIROL	19	14	10	4	47
VBG	20	17	10	1	48
Totals	509	196	263	34	1002

Source: Austrian Energy Agency

ÖBf WIEN ENERGIE BIOMASSE KRAFTWERK SWH = Strom und Wärme aus Holz

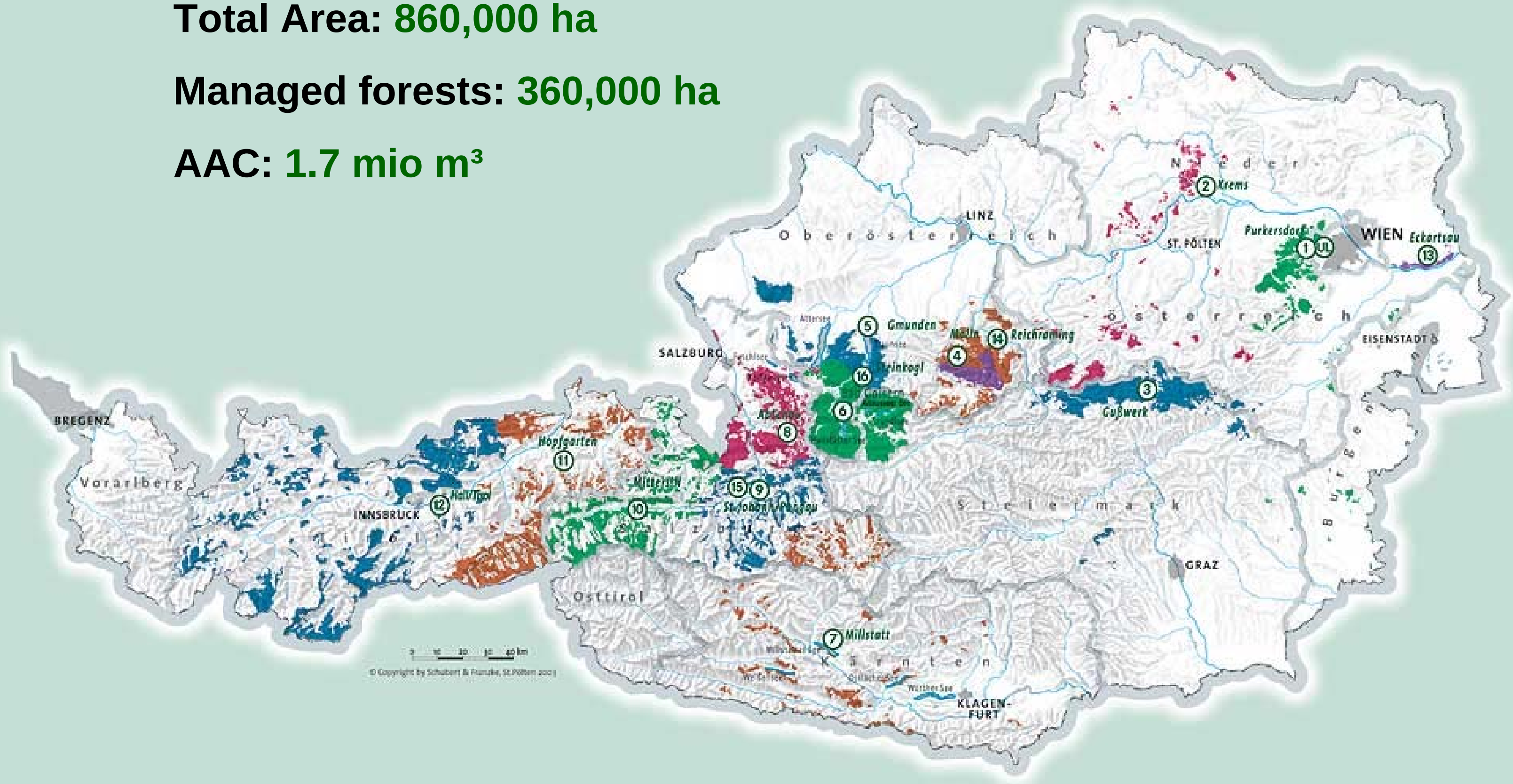
ÖBf-Austrias largest single biomass producer

Key data of ÖBf AG

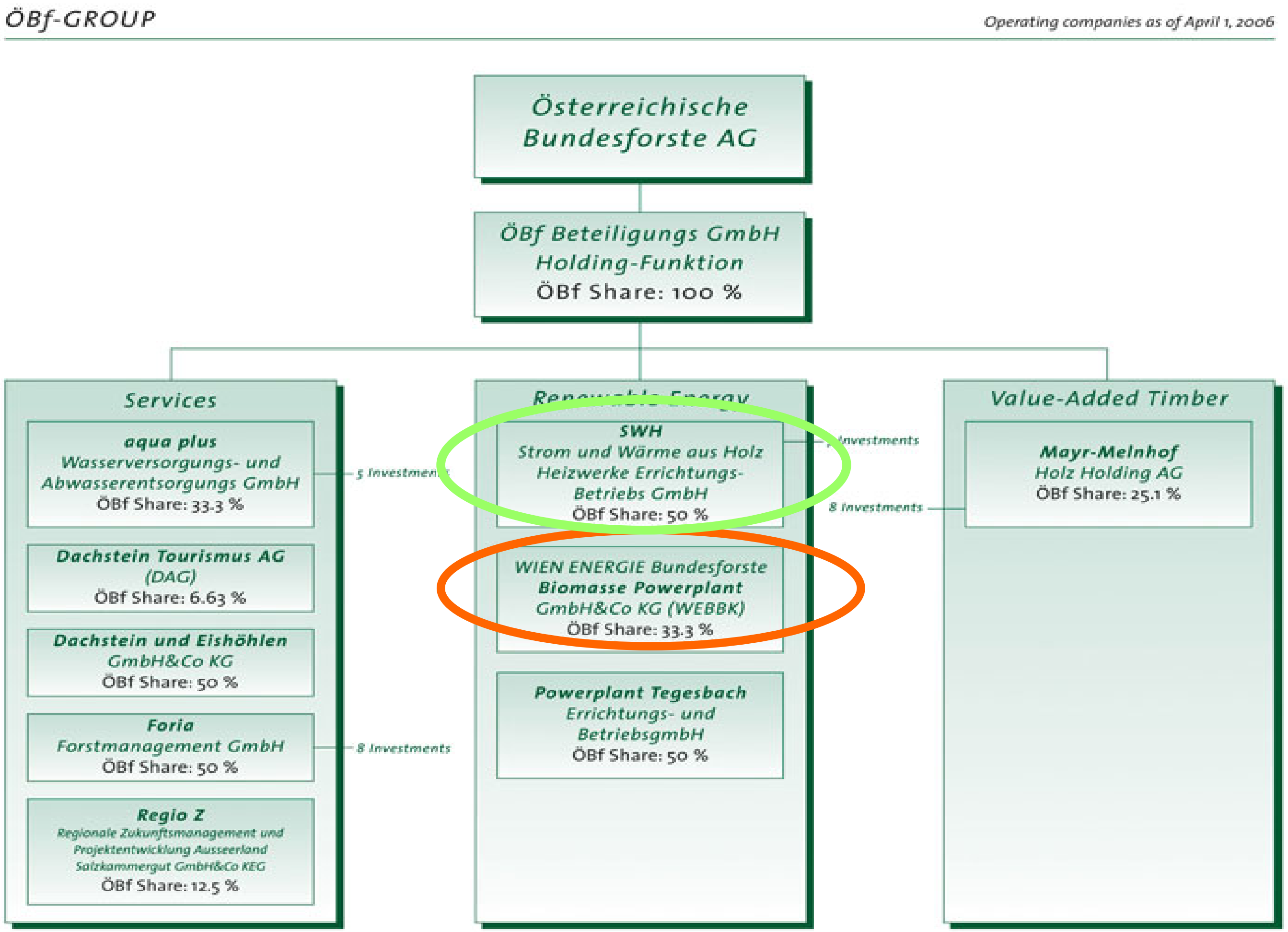
Total Area: 860,000 ha

Managed forests: 360,000 ha

AAC: 1.7 mio m³



The Role of ÖBf in Austrian Biomass Usage



Company Setup WEBBK

Fernwärme Wien Gesellschaft m.b.H.

WIENSTROM GmbH

ÖBf Beteiligungs GmbH

33,3 %

33,3 %

33,3 %

WIEN ENERGIE Bundesforste Biomasse Kraftwerk GmbH

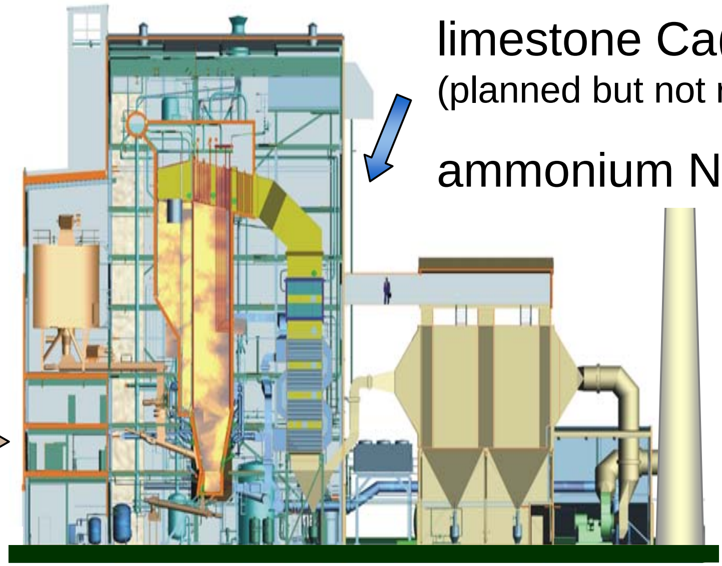
Mass Flow

biomass supply
ca. 600,000 loose/a
ca. 245,000 fm/a
ca. 190,000 t/a

activated carbon (as necessary)

limestone $Ca(OH)_2$ ca. 44.0 kg/h-
(planned but not required)

ammonium NH_3 ca. 1.1 kg/h



biomass ca. 24.0 t/h

sand ca. 0.3 t/h

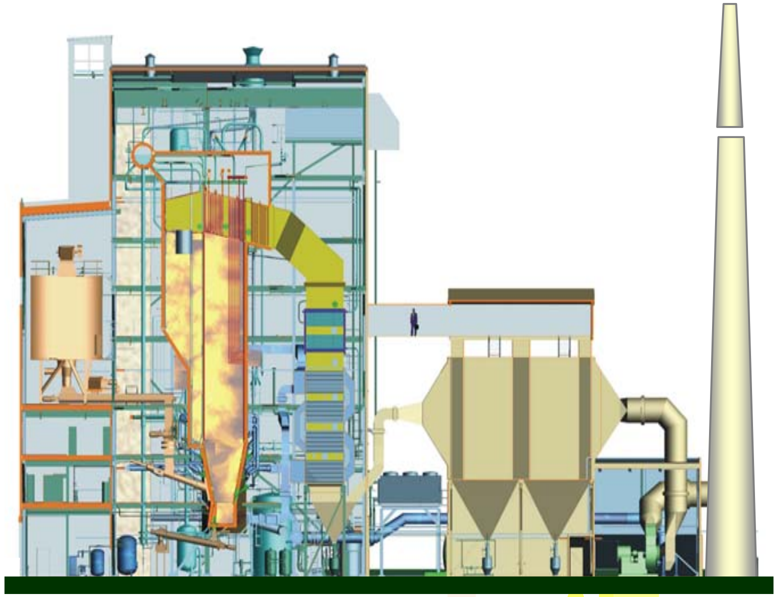
bed ash and sand ca. 290 kg/h

filter ash and
dry sorption product ca. 370 kg/h

Energy Data

fuel load
max. 65.7 MW_{th}

annual fuel capacity
ca. 520 GWh

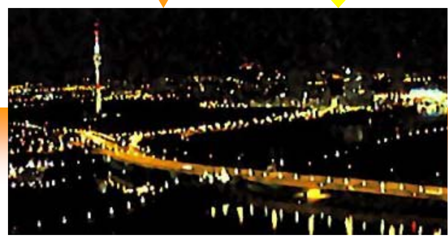


energy efficiency
summer ca. 36 % brutto
winter ca. 80 % brutto

summer
23.5 MW_{el} brutto
21.3 MW_{el} netto

winter
heat 37.0 MW

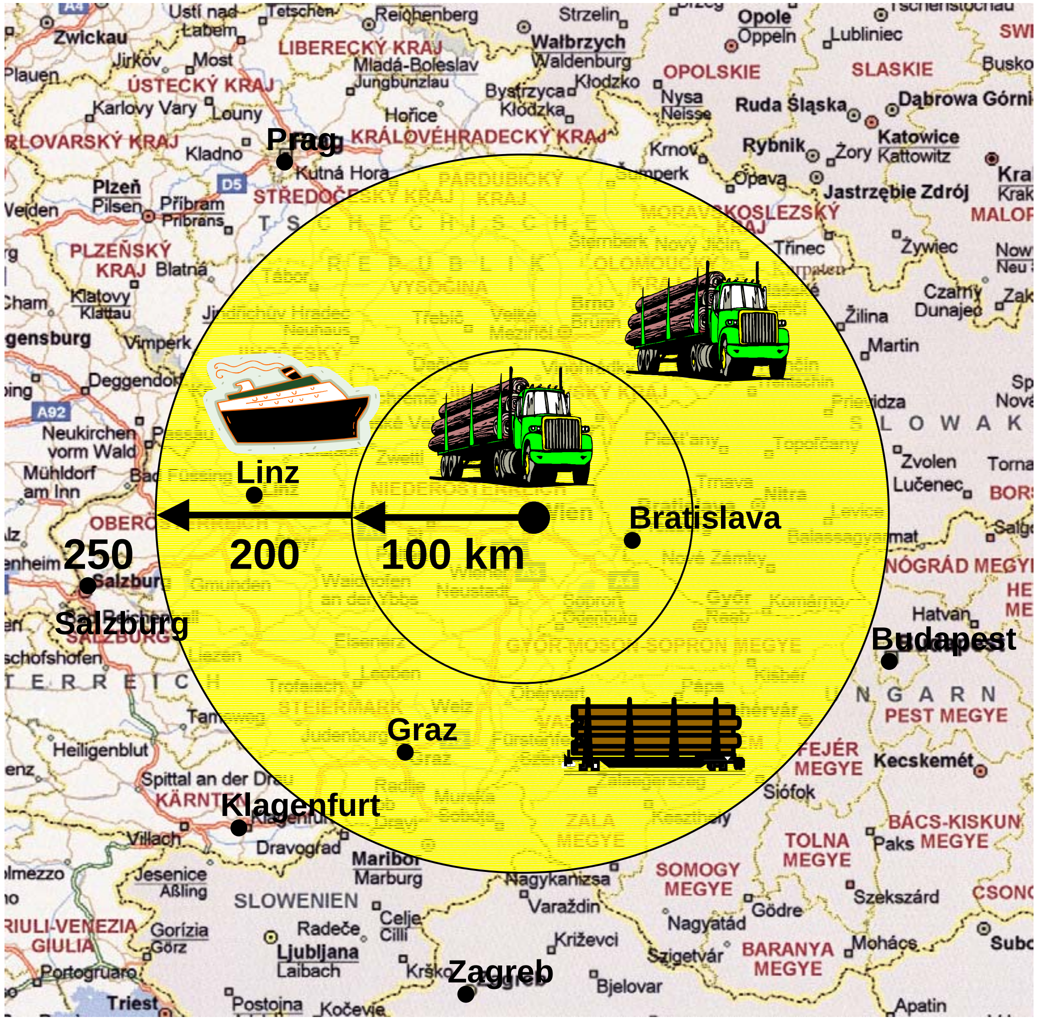
winter
15.1 MW_{el} brutto
12.9 MW_{el} netto



district heat ca. 12,000 HH

electricity ca. 48,000 HH

Fuel Supply



Wood biomass handling

- round timber ca. 190,000 t/a (ca. 245,000 m³/a)
- wood chips ca. 600,000 m³ loose/a

Shares of wood fuel supply by transport distance

up to 100 km	80 %
100 – 200 km	20 %

Distance to selected locations

up to 60 km: Bratislava

up to 100 km: Krems, Brno

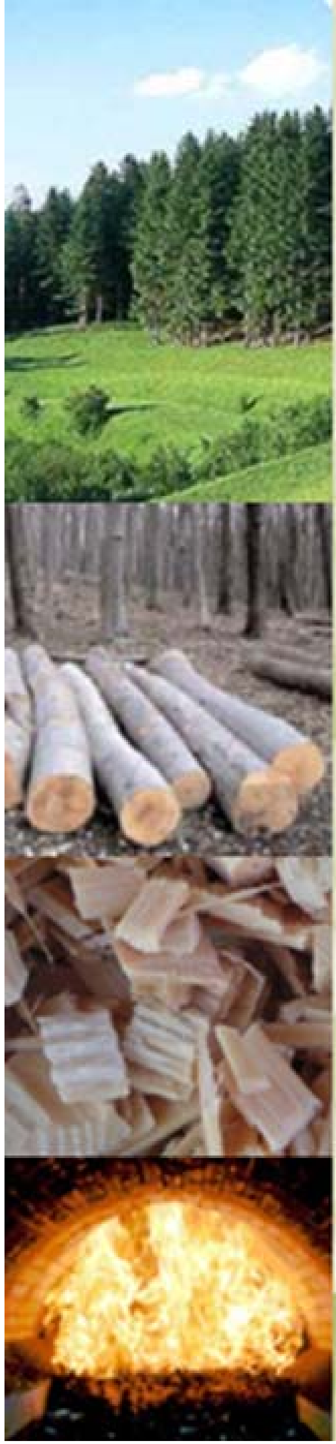
up to 200 km: Vöcklabruck, Budapest

Ecological Benefit

- **Contribution to obtain the renewable energy aim**
  Contribution of ca. 7.6% to the nationwide aim

- **Protection of fossil resources**
  Replacement of fossil resources of yearly ca. 72,000 t hard coal, ca. 47,000 t fuel oil H or rund 40,000 t natural gas

- **Contribution to climate protection**
  Prevention of CO_2-emissions of ca. 144,000 t per year



SWH

...wir machen mehr aus Biomasse

&

SWH = **S**trom und **W**ärme aus **H**olz

(Energy and Heat from wood)

SWH = Strom und Wärme aus Holz

ÖBf Biomass and CHP Activities

SWH - References

SWH

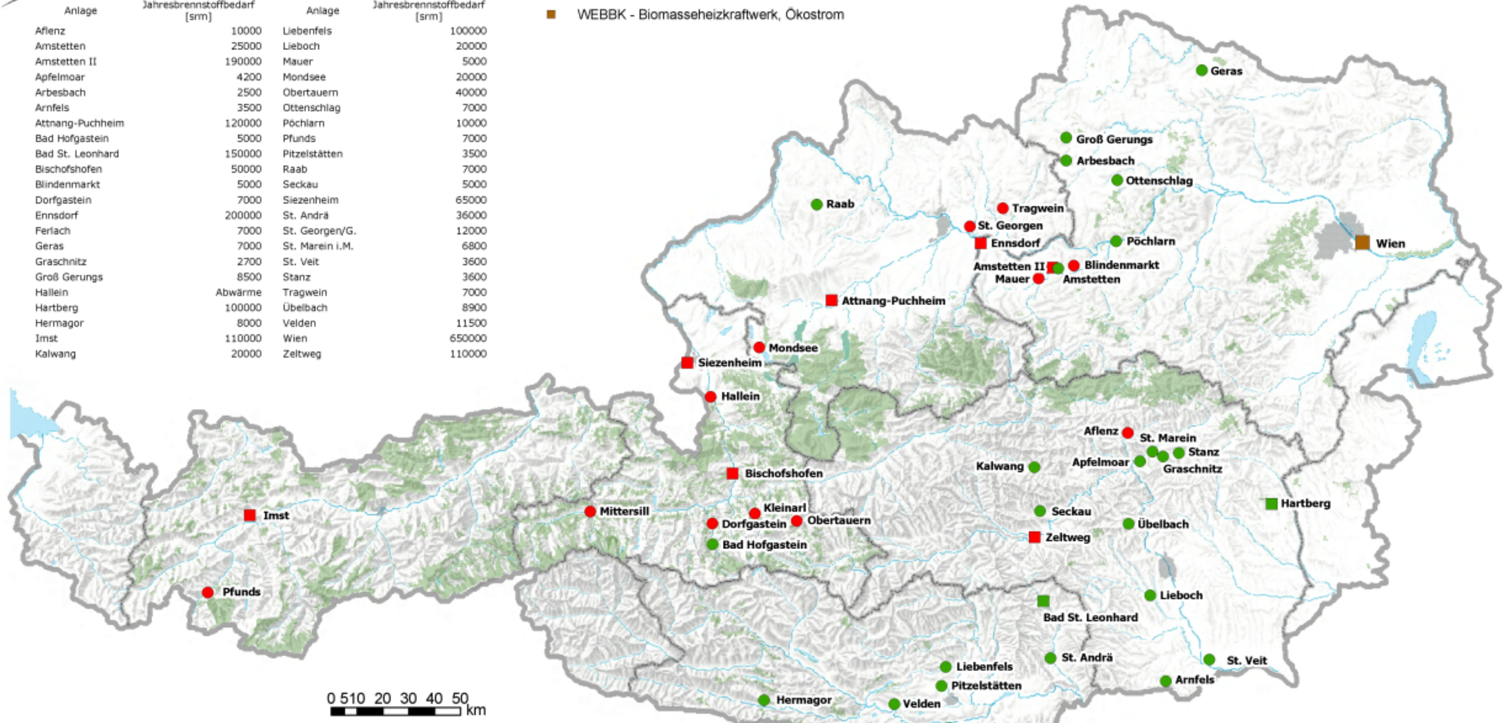
...wir machen mehr aus Biomasse

Standorte Biomasse Heiz(kraft)werke

SWH - Strom und Wärme aus Holz GmbH

- SWH - Strom und Wärme aus Holz GmbH bzw. Kooperationsprojekte, Ökostrom
- SWH - Strom und Wärme aus Holz GmbH bzw. Kooperationsprojekte, Fernwärme
- WBG - Wärmebetriebe GmbH bzw. Kooperationsprojekte, Ökostrom
- WBG - Wärmebetriebe GmbH bzw. Kooperationsprojekte, Fernwärme
- WEBBK - Biomasseheizkraftwerk, Ökostrom

Anlage	Jahresbrennstoffbedarf [srm]	Anlage	Jahresbrennstoffbedarf [srm]
Aflenz	10000	Liebenfels	100000
Amstetten	25000	Lieboch	20000
Amstetten II	190000	Mauer	5000
Apfelmoar	4200	Mondsee	20000
Arbesbach	2500	Obertauern	40000
Arnfels	3500	Ottenschlag	7000
Attnang-Puchheim	120000	Pöchlarn	10000
Bad Hofgastein	5000	Pfunds	7000
Bad St. Leonhard	150000	Pitzelstätten	3500
Bischofshofen	50000	Raab	7000
Blindenmarkt	5000	Seckau	5000
Dorfgastein	7000	Siezenheim	65000
Ennsdorf	200000	St. Andrä	36000
Ferlach	7000	St. Georgen/G.	12000
Geras	7000	St. Marein i.M.	6800
Graschnitz	2700	St. Veit	3600
Groß Gerungs	8500	Stanz	3600
Hallein	Abwärme	Tragwein	7000
Hartberg	100000	Übelbach	8900
Hermagor	8000	Velden	11500
Imst	110000	Wien	650000
Kalwang	20000	Zeltweg	110000



Stand: November 2005

SWH Key Figures

Key figures	Status			Total
	Plants in operation	Plants under construction	In Planning stage	
Total Investment (Million Euros)	**102,5 Mio.**	**23,3 Mio.**	**37,9 Mio.**	**163,7 Mio.**
Production thermal (MWh/a)	**349.000**	**84.000**	**80.000**	**513.000**
Energy Production Green electricity MWh/a)	**70.200**	**40.000**	**15.000**	**125.200**
Fuel consumption (m³)	**812.000**	**348.000**	**200.000**	**1.360.000**

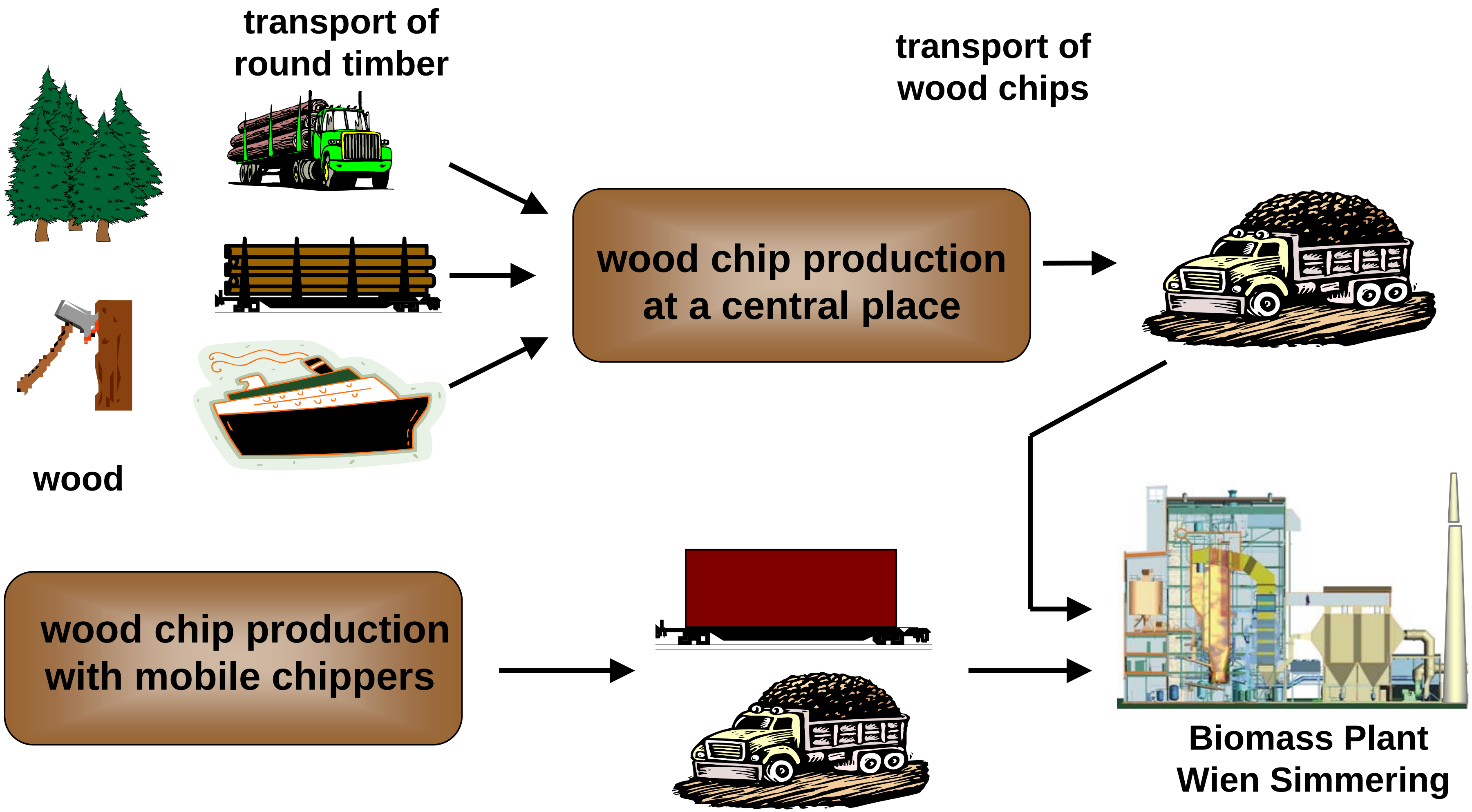
Biomass Supply

- **Austrian Federal Forest AG**
  partner for biomass supply

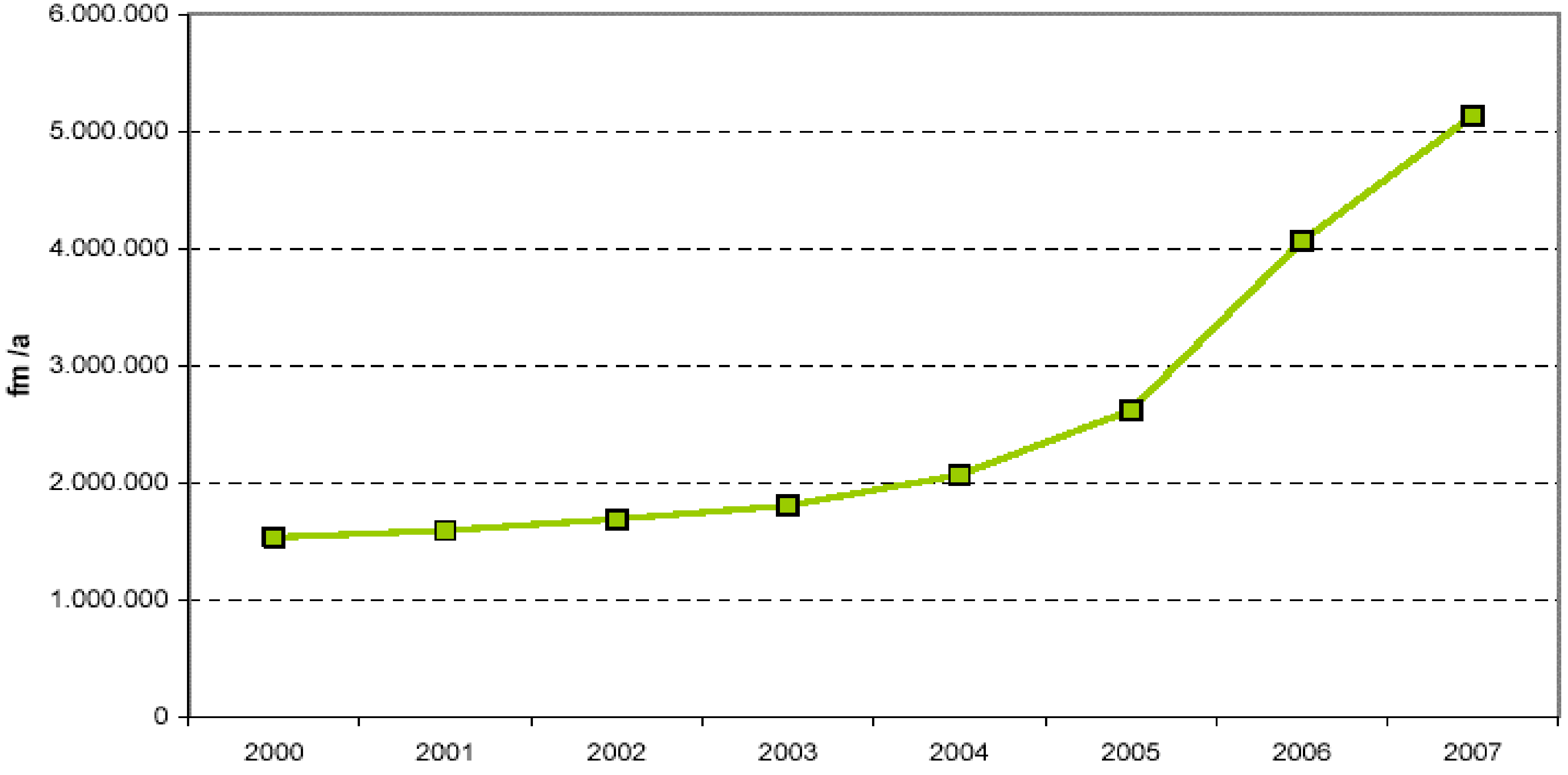
Basic principles

- long-term delivery contracts for wood chips
- partner with appropriate logistic-know-how
- wood chip supply just-in-time and ready-to-burn
- providing a permanent wood chip delivery

Logistic Concept



Estimate of fuel demand for biomass CHPs in Austria



Source: AEA 2006

Competition, something new ?

- **ÖBf has currently contractual obligations to deliver**
  - the complete wood biomass supply for WEBKK and
  - additionally nearly 600,000 loose m³/a for 14 plants of SWH.
- **Hence the supply of 15 plants depends more or less on the provision of biomass from ÖBf through its own areas as well as through its timber logistics centre.**
- **The incentives set to make bio energy competitive now introduced a competition in an earlier buyers market , where industrial wood (Pulp, fuelwood) were used to set prices for the suppliers.**
- **Market establishment causes distortions and teething problems in adapting to new competitors and calculations**

Market observations from ‘both sides’

- Local and regional demands exceed traditional and readily avaialble supply sources.
- Large forest enterprises have reached their own AACs and can only support logistically or in market exploration
- Price development exceeded expectations - Long term price corridors and ceilings are reached and require renegotiations
- Industry reacts with high flexibility, explores new sources and models (concessions in western Balkan states...)
- Import of Biomass is not (yet?) reasonable and politically sensitive

Outlook into a greener future?

- **Ecological questions are raised but mostly adressed thoroughly**
- **Shortages in residues for wood processing industries -less bark, chips, sawdust etc. available**
- **Subsidies have sparked a number of smaller CHPs without secured wood supply, these increase pressure on the suply side without a sustainable perspective**
- **New uses and clients for Biomass:**
  - Pellet boom, especially also in South and Central Eastern Europe
  - Biomass requirements for biofuels?

Summary

- Stable tariff policy essential to secure investment returns and to enable larger investments
- Focus on energy efficiency and supply security at subsidy designs could avoid misallocations
- Consideration of supply security could be part of subsidy regimes in nearly saturated biomass plant markets and would ease regional mobilizing of wood resources

THANK YOU!!!

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