



Österreichischer Biomasse-Verband
AUSTRIAN BIOMASS ASSOCIATION

Biomass for heat in Austria

Backbone
of energy
transition

Part of
sustainable
forestry
and
industry

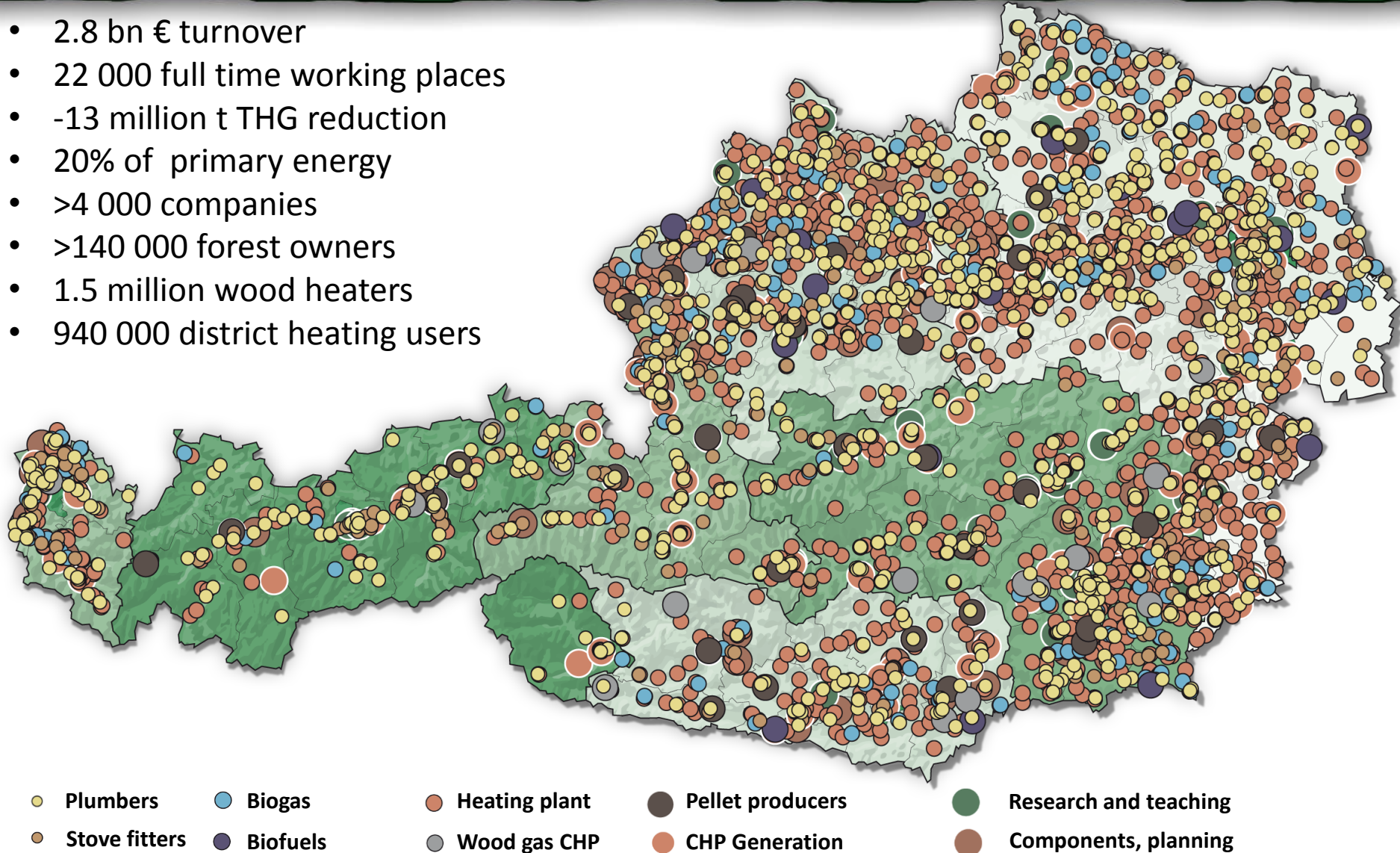
Huge
benefits
and low
emissions



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The bioenergy sector in Austria

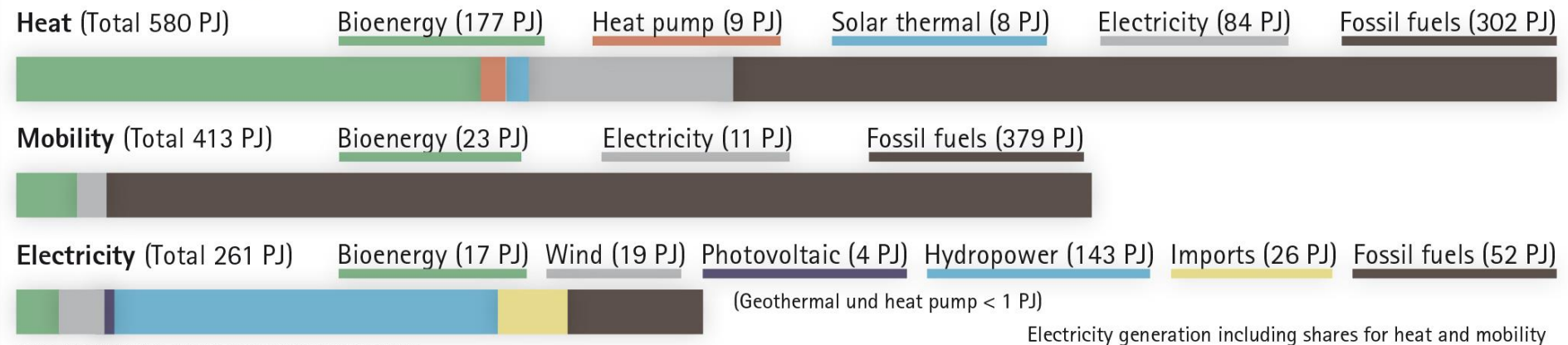
- 2.8 bn € turnover
- 22 000 full time working places
- -13 million t THG reduction
- 20% of primary energy
- >4 000 companies
- >140 000 forest owners
- 1.5 million wood heaters
- 940 000 district heating users





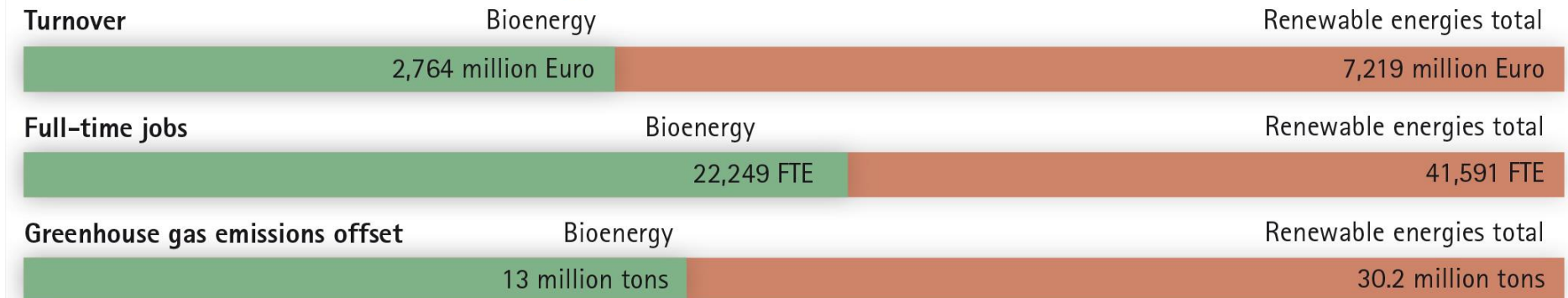
- Share of renewables: 33%
- Share of bioenergy on renewables: 55%
- Share of bioenergy: 20 %

Final energy consumption in Austria



Source: Statistis Austria, Energy balance 2016; numbers for 2016

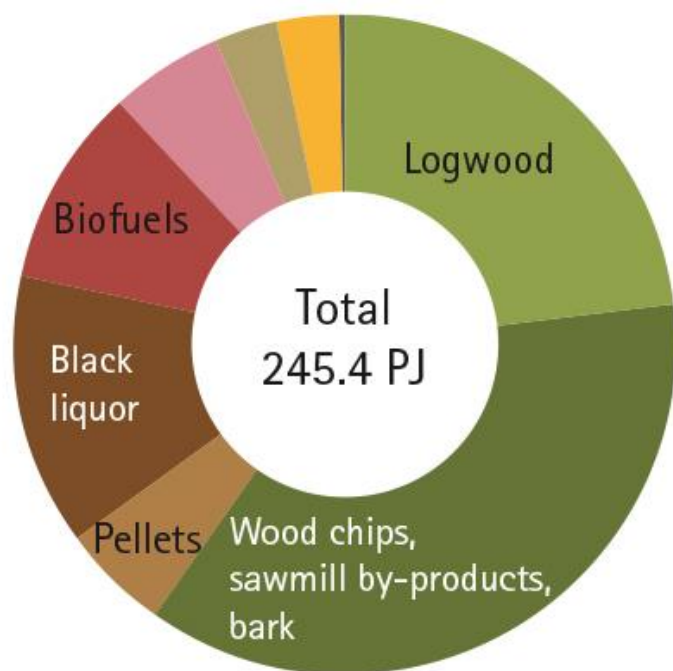
Effects of renewable energies



Source: Renewable energy in figures, Peter Biermayr, 2017; numbers for 2016



Gross Domestic Consumption of bioenergy 2016



23.3 %	Logwood
36.6 %	Wood chips, sawmill by-products, bark
5.4 %	Pellets
13.4 %	Black liquor from paper industry
9.7 %	Bioethanol, biodiesel, vegetable oils
5.3 %	Biogas landfill gas and sewage gas
3.2 %	Meat and bone meal, sewage sludge, straw, various biogenics
3.0 %	Combustible waste
0.2 %	Charcoal

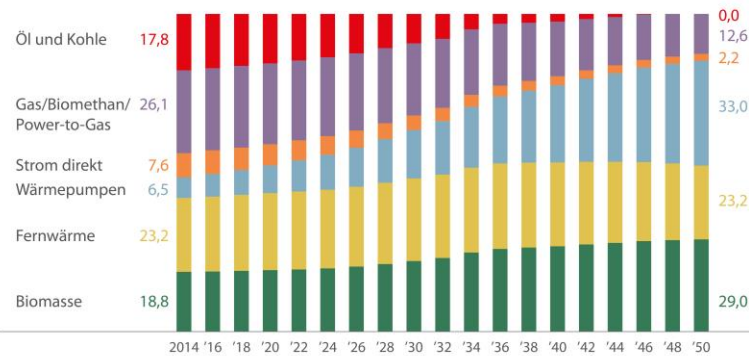
Wooden Bioenergy: 78.6%

Source: Statistik Austria, Energy balance 2016



Beheizte Gebäudeflächen nach Energieträgern

Anteil der Gebäudeflächen nach Energieträgern in Prozent

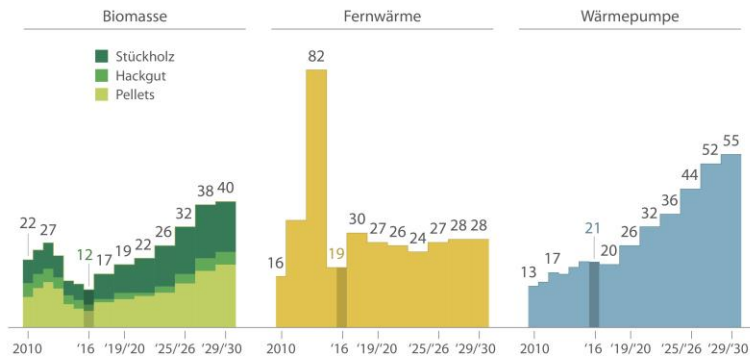


Auftraggeber/Quelle: Erneuerbare Energie Österreich

APA-AUFTRAGSGRAFIK

Installation von Heizanlagen auf Basis erneuerbarer Energie im Wärmewendesenario

Jährliche Installationen in Tausend



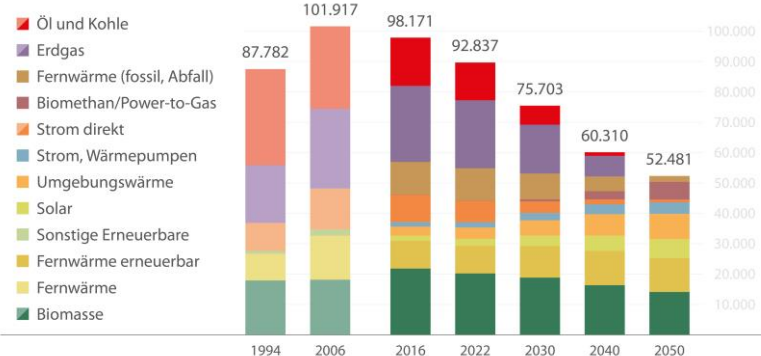
Historische Daten (2010-2016): Fernwärmeanschlüsse: Statistik Austria, Mikrozensus
Erneuerbare Systeme: Biermayr et al., Innovative Energietechnologien in Österreich Marktentwicklung 2016

Auftraggeber/Quelle: Erneuerbare Energie Österreich

APA-AUFTRAGSGRAFIK

Endenergieeinsatz für Heizen und Warmwasserbereitstellung

in Gigawattstunden (GWh/a)



Auftraggeber/Quelle: Erneuerbare Energie Österreich

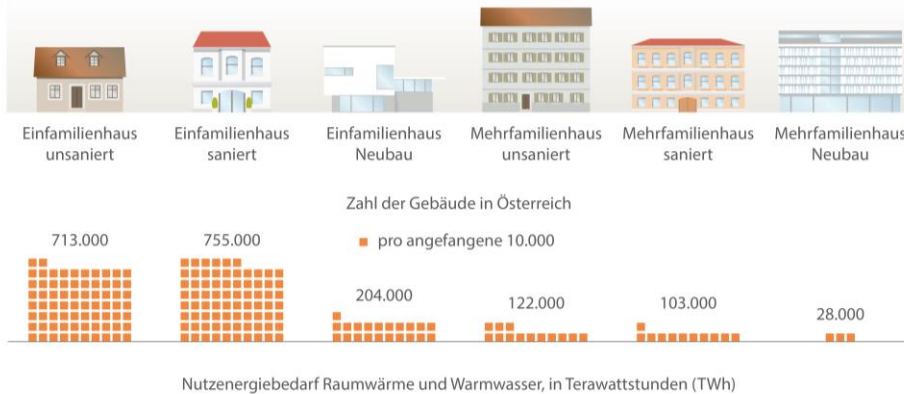
APA-AUFTRAGSGRAFIK

- **100% renewable heating is possible**
- **In an efficient and renewable system the energy demand is halved.**
- **50% of the buildings can be heated with bioenergy**
- **This means 4 times higher installation rates**
- **Less (!) biomass input**



Renewables are the cheapest solution

Gebäudetypen im Vergleich



Heizkosten nach Gebäudetypen

pro Wohneinheit und Jahr, in Euro

■ Investitions- und Finanzierungskosten

Laufende Kosten nach Energieträgern

Einfamilienhaus unsaniert

Heizungstyp	2019	2020
Scheitholz	3.449	2.397
Pellets	3.956	2.549
Fernwärme	4.067	3.197
Heizöl	4.219	3.284
Erdgas	4.237	3.448
Luft-Wärmepumpe	4.298	2.845
Erd-Wärmepumpe	4.485	2.402

Einfamilienhaus saniert

Scheitholz	2.602	1.052	1.550
Luft-Wärmepumpe	2.793	1.278	1.515
Pellets	2.825	1.188	1.637
Erdgas	2.843	727	2.116
Fernwärme	2.944	870	2.074
Heizöl	3.017	981	2.036
Erd-Wärmepumpe	3.030	1.694	1.336

Einfamilienhaus Neubau

Heizungstyp	2017	2018	2019
Luft-Wärmepumpe	1.928	1.013	915
Erdgas	1.966	649	1.317
Scheitholz	2.081	1.040	1.041
Heizöl	2.145	858	1.287
Pellets	2.244	1.155	1.090
Fernwärme	2.270	870	1.400
Erd-Wärmepumpe	2.286	1.418	868

Mehrfamilienhaus unsaniert

Hackgut	1.086	269	817
Pellets	1.187	232	950
Heizöl	1.339	129	1.210
Fernwärme	1.362	110	1.252
Luft-Wärmepumpe	1.368	220	1.148
Sole-Wärmepumpe	1.371	389	952
Erdgas	1.399	109	1.290

Mehrfamilienhaus saniert

Hackgut	819	232	587
Pellets	833	109	634
Luft-Wärmepumpe	858	185	673
Heizöl	888	111	777
Sole-Wärmepumpe	917	106	610
Erdgas	922	93	829
Fernwärme	937	96	842

Mehrfamilienhaus Neubau

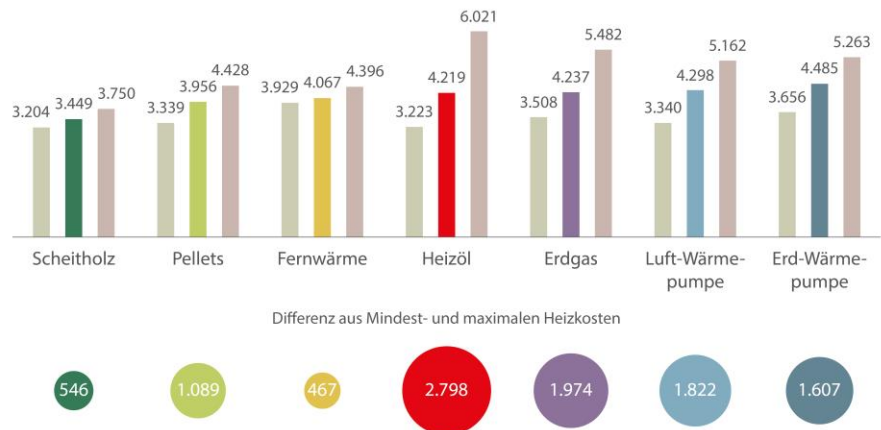
Luft-Wärmepumpe	666	171	495
Pellets	675	184	491
Heizöl	685	103	582
Hackgut	700	217	483
Erdgas	708	87	621
Fernwärme	738	90	647
Sole-Wärmepumpe	742	226	464

Risikoabschätzung nach Energieträgern für ein unsaniertes Einfamilienhaus

Mittlere Heizkosten pro Wohneinheit und Jahr, in Euro

■ Mindestheizkosten

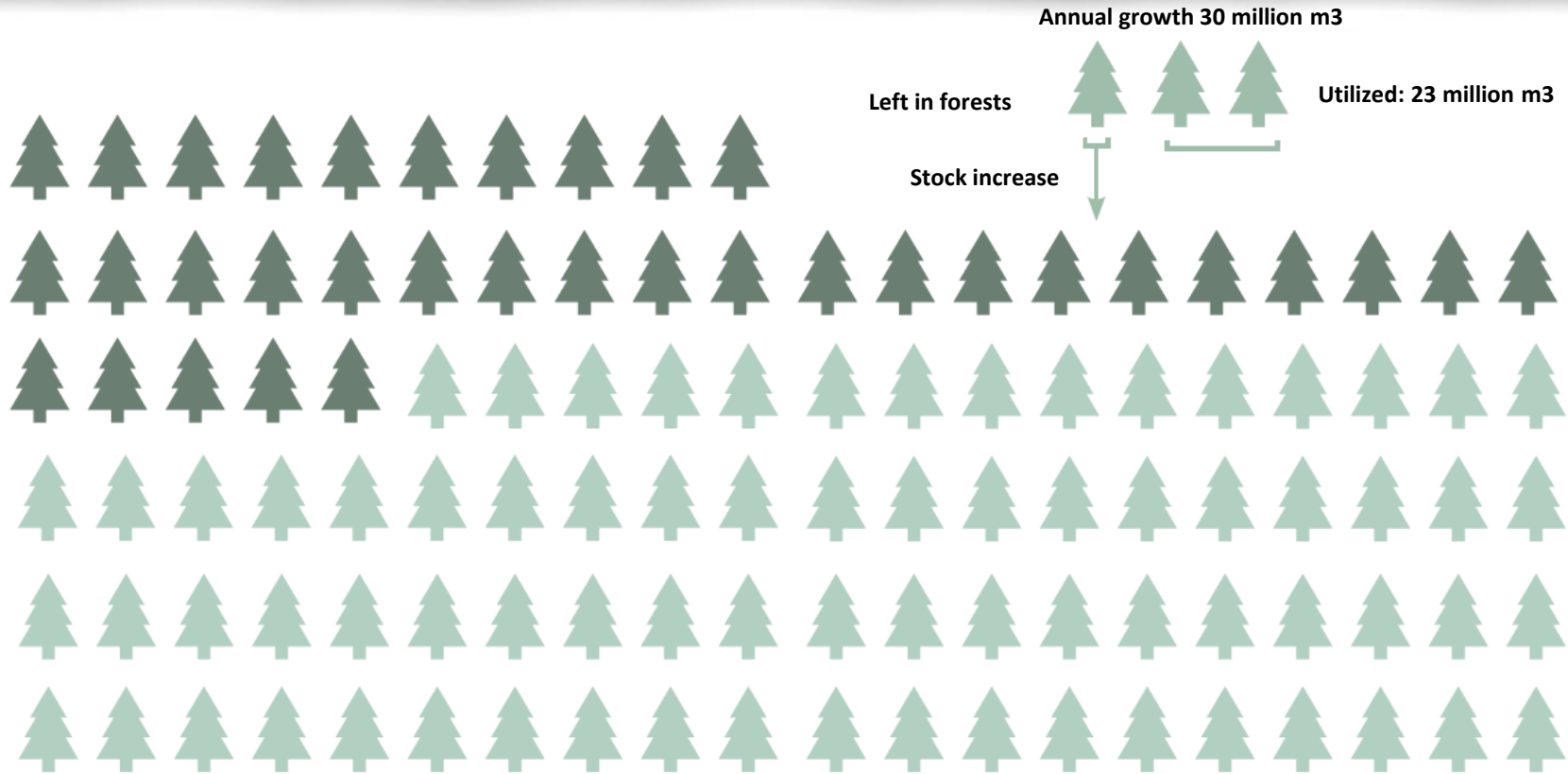
■ Maximale Heizkosten



Source: TU Wien, Wärmesukunft 2050



Wood stock (and growth)



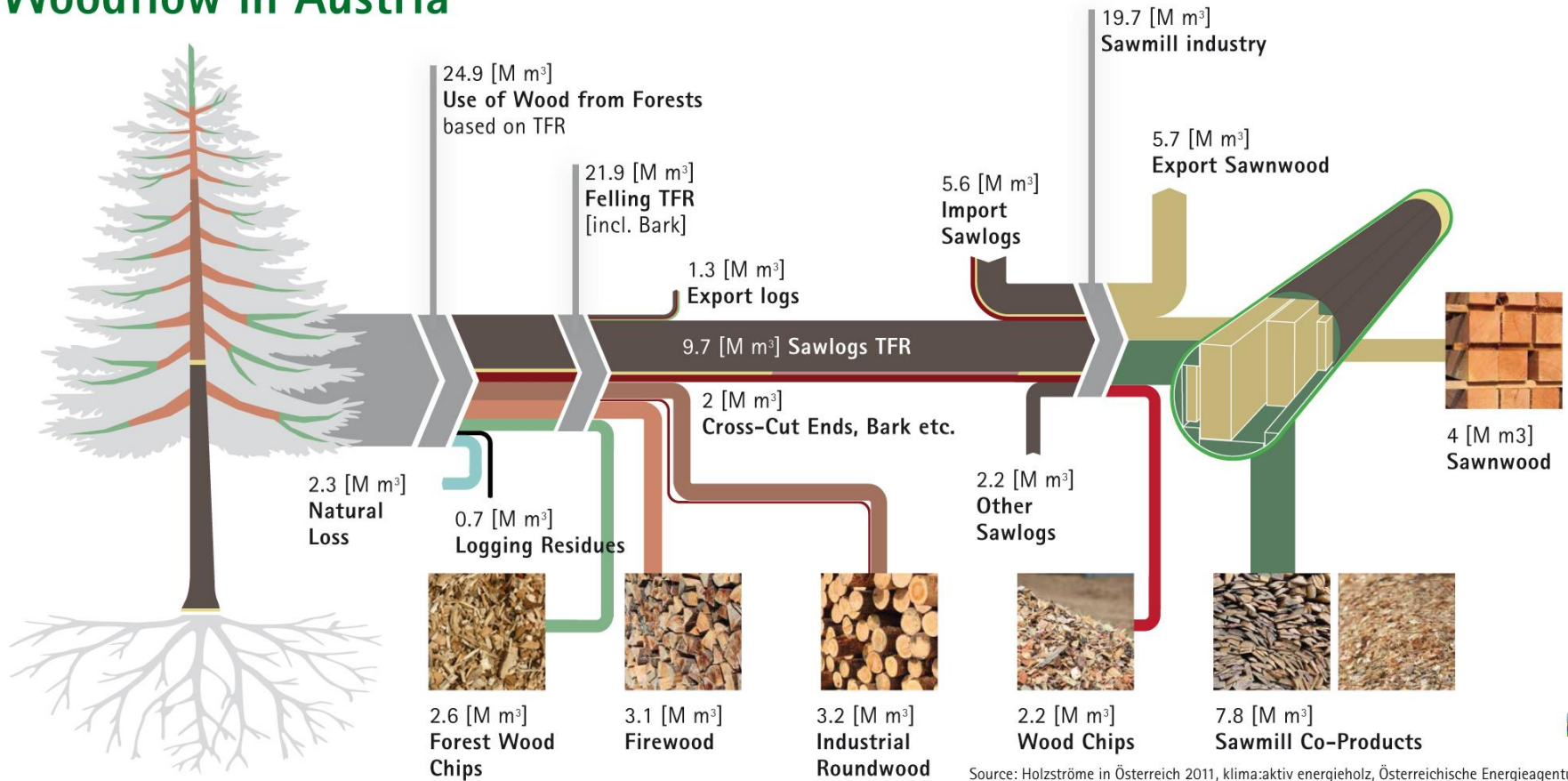
Wood stock increase from 1960 till today: 350 million solid m³



Wood stock 1960: 750 million solid m³



Woodflow in Austria

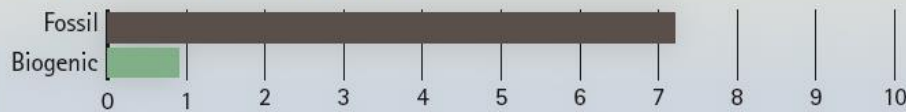
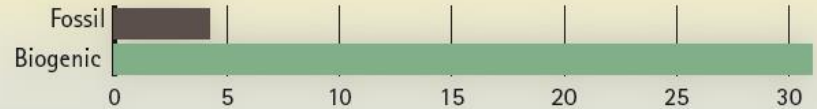
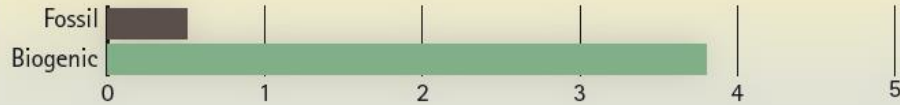
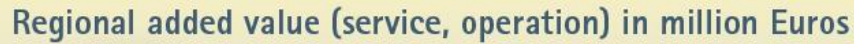


80% of used freshwood is processed by the Industry, only 20% is used for direct energy production. The income for forestry out of selling biomass for energy varies between 3 and 10%. **1m³ solid wood product leads to 6m³ by products > Build with wood!!!!**



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Regional effects



Source: AEA, ÖBMV



Effects of bioenergy and fossil energy for space heating in the Climate and Energy Model Region Hartberg; energy mix contains 47 percent of biomass

Regional effects of heat allocation in the Climate and Energy Model Region Hartberg



Carbon emissions:
58 500 t/a

Jobs: 8.5 FTE/a

Cash drain:
15.1 M€/a

Status quo: 47 % bioenergy

Carbon emissions:
31 900 t/a

Jobs: 35 FTE/a

Cash drain:
8.1 M€/a

100 % bioenergy

Carbon emissions:
1 600 t/a

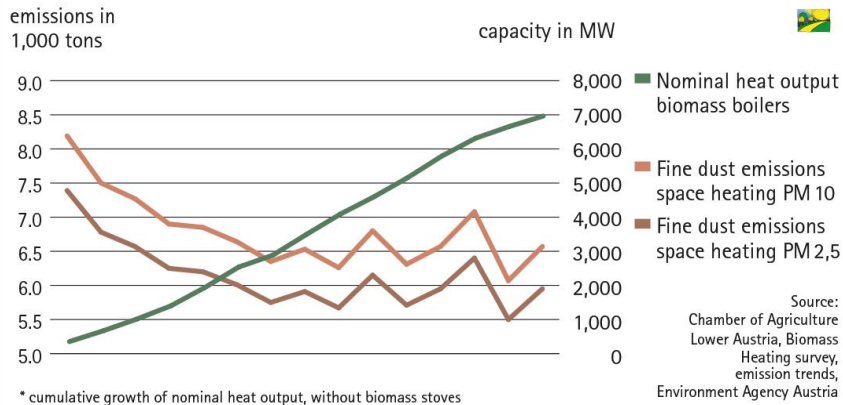
Jobs: 61 FTE/a

Cash drain:
1.6 M €/a



Increased installations = Decreased emissions

Development of the new installed capacity of biomass boilers < 100 kW* and fine dust emissions of space heating

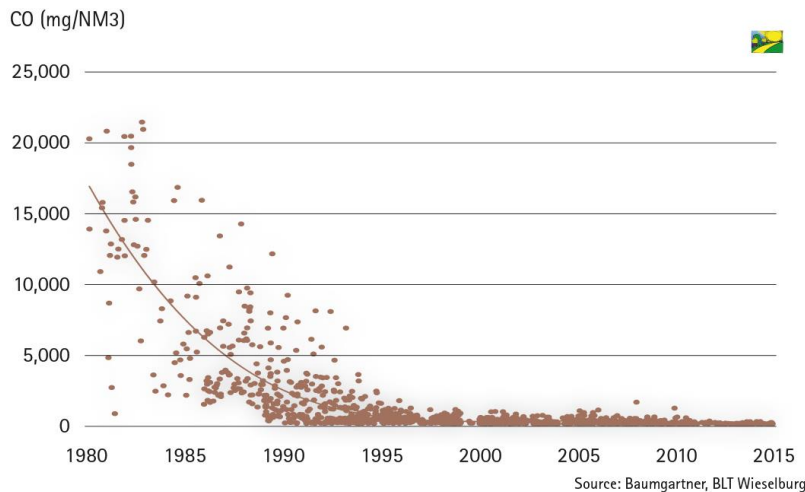


>Declining fine dust emissions and rapidly growing installations

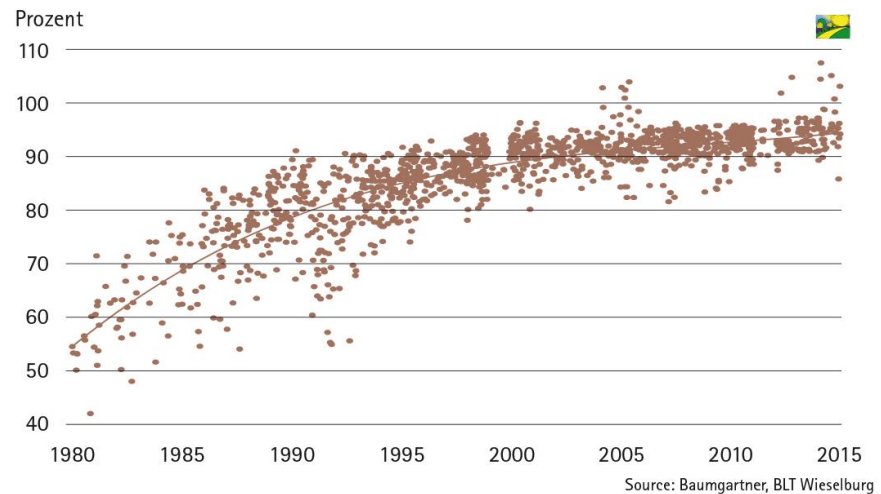
>Decreasing emissions of boilers

>Increasing efficiency of boilers

Carbon monoxide emissions from tested biomass boilers



Efficiency of tested biomass boilers





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Bioenergy in Austria

A factor creating added value



Wood Chips

From Harvest to Fuel



Visit us at the next
**Central European
Biomass Conference**
18th to 20th January 2017, Graz, Austria



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Why is the image of Bioenergy under pressure?



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