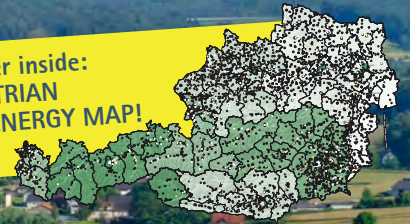


Bioenergy in Austria

A factor creating added value

Poster inside:
AUSTRIAN
BIOENERGY MAP!



Welcome to the
**Central European
Biomass Conference**
January 2026, Graz, Austria



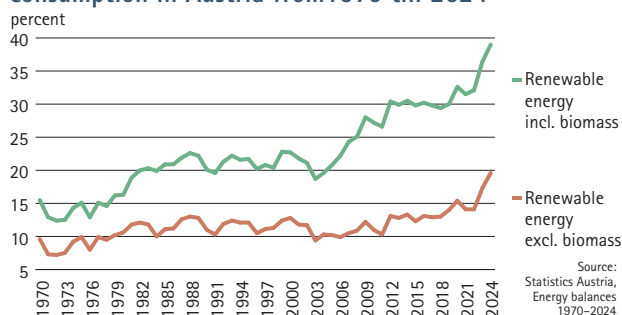
ÖSTERREICHISCHER
BIOMASSE-VERBAND
Austrian Biomass Association

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The impact of biomass ...

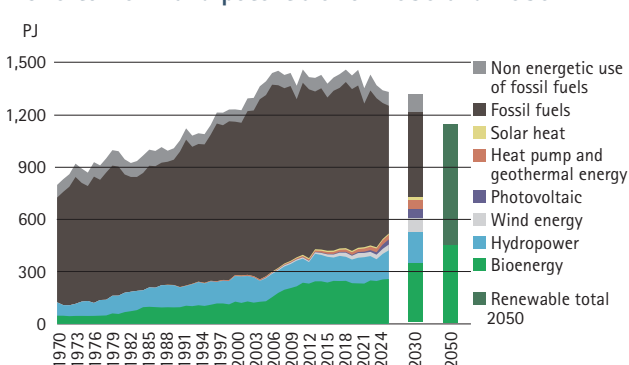
Over the past decades, the bioenergy sector has become a mainstay of Austria's energy accommodation. Biomass provides a substantial contribution to Austria's transition towards a sustainable and climate-friendly energy system, creating domestic added value as well as employment and spending power. Austrian enterprises and research institutions ensure that our bioenergy technologies occupy top positions in the domestic and international markets.

Share of renewable energy of gross domestic energy consumption in Austria from 1970 till 2024



The share of renewable energies excluding bioenergy has stagnated in recent decades and has only recently risen significantly.

Development of gross domestic energy consumption 1970 to 2024 and potentials for 2030 and 2050



Mainly thanks to bioenergy, there was a sharp increase in renewable energy production in the early 2000s.



With a share of around 80 percent, forests are currently Austria's most important raw-material supplier for bioenergy.

The biggest domestic energy source

Biomass is by far the most important domestic energy source. In 2024, 44 percent of the total domestic energy volume were provided by biomass, followed by hydropower which provided 28 percent. Biomass is Austria's most relevant renewable energy source, accounting for 50 percent of the total amount. Once again, hydropower occupies the second rank, accounting for 32 percent.

EU goals: not without bioenergy

Between the years 1990 and 2024, the share of bioenergy of the total energy consumption in Austria has evolved from 9.1 to 19.4 percent even though Austrian energy consumption increased by 26 percent during that period. This was possible because the total use of biomass now amounts to approximately 2.7 times the volume of the year 1990.

In 2024, Austria achieved a record level of 39 percent renewable energy in gross domestic energy consumption. Without bioenergy, this figure would be below 20 percent. The EU aims to increase the share of renewable energies in gross final energy consumption to 42.5 percent by 2030. In 2024, this share was only 25.4 percent. Bioenergy accounts for 54 percent of renewable energies in the EU. The EU's renewable energy targets cannot be achieved without bioenergy.

Forests: main source of raw material

The most important source of raw material for the biomass sector are our forests. They supply almost 80 percent of the biomass used in Austria; around 17 percent comes from agriculture and 4 percent from waste. The Austrian Energy Agency's biomass strategy contains three scenarios with low (250 PJ), medium (350 PJ), and high (450 PJ) biomass use by 2040. Fossil fuels are to be replaced by then. Biomass will thus become the most important energy source nationwide.



There is still great potential for expansion in the energetic use of agricultural residues.

... for our energy system

Heat market dominant

In Austria, biomass is traditionally used primarily for heat generation. In 2024, the heating market was the main area of application for bioenergy, accounting for 83 percent of the total, followed by biofuels with 10 percent and electricity generation from biomass and biogas with 7 percent. Around 78 percent of bioheat production comes from individual heating systems, with the rest coming from district heating. The latter has seen the highest growth rate, with production more than tripling over the past 20 years. The biogenic share of district heating has risen from 22 percent to over 55 percent since 2005. Biomass CHP plants supply 23 percent of total district heating, while biomass heating plants deliver almost 33 percent.

Main source of room heating

Biomass accounts for 36 percent of the energy mix for heat consumption. Of this, 64 percent is used for space heating and hot water, while 36 percent is used for process heat. When it comes to heating residential buildings, biomass is by far the most popular energy source in Austria, with a share of over 43 percent of energy use. 670 000 domestic households mainly use wood heating to keep their homes warm. A network of around 2 500 biomass heating plants supplies large parts of Austria with climate-friendly local heating.

Energy for mobility: a challenge

In road transport, biomass is the most important renewable energy source, accounting for 8 percent of final energy consumption. Despite rising numbers of electric car registrations, electricity accounts for only 2.7 percent of road transport energy consumption. In addition to the expansion of renewable energies, new mobility concepts are needed, including the expansion of public transport and car sharing, in order to curb CO₂ emissions from the combustion of fossil fuels.

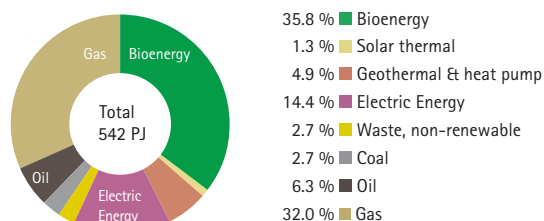
Green power, whatever the weather

With a share of 5.9 percent in electricity generation, biomass is an important producer of green electricity. Wood gas cogeneration technology, which is becoming increasingly widespread in Austria and Germany, allows for high efficiency regarding small-scale power generation. Biomass combined heat and power plants are capable of generating electricity around-the-clock and thus to make an important contribution to electricity base load accommodation.



Approximately 83 percent of Austria's bioenergy is used for the generation of heat.

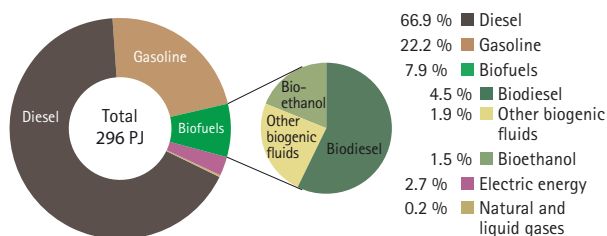
Final energy consumption, heating, 2024



Source: Statistics Austria, Energy balance 2024, Useful energy analysis 2024

For heating, biomass is Austria's most important energy source followed by natural gas.

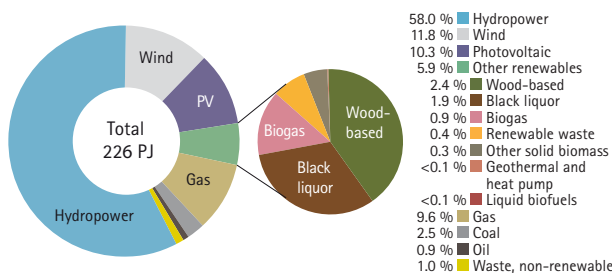
Final energy consumption, road transport, 2024



Other land transport excluding railways, shipping, air transport and transport in pipelines
Source: Statistics Austria, Energy balance 2024

Fossil fuels dominate road transport – biofuels can cover around 8 percent of demand.

Final energy consumption, electricity, 2024



Source: Statistics Austria, Energy balance 2024

Biomass covers around 6 percent of electricity generation, the biggest part of that is produced by wood CHP plants.



More than 55 percent of district heating in Austria is generated from biomass in regional heating plants and wood-fired power plants.

Regional effects of bioenergy

Case study: the region of Hartberg

A study by the Austrian Energy Agency on behalf of the Climate and Energy Fund has closely examined the practical effects of biomass use in the Climate and Energy Model Region (KEM) Hartberg in eastern Styria. Said region includes the following communities: Hartberg town, Hartberg surroundings, Greinbach and St. Johann in der Haide. 38 percent of that area are covered by forests. The harvest of timber could still be increased by about 50 percent. Overall 12 600 people are living in the region. Their combined consumption of heat energy amounts to approximately 720 terajoule (TJ) per year. 53 percent of heat energy consumption in the region are covered by fossil energy sources, mainly heating oil. The remaining 47 percent are covered by bioenergy sources.

An example for other regions

The presumptions for the calculation of added value and employment effects in this case study were chosen in a way that makes them easily transferable. Hence the Climate and Energy Model Region Hartberg gives a replicable example for many other regions in Austria. The insights gathered from this project should help persons in charge in other regions opt for investments in domestic renewable energy sources.

Employment in the chain of custody

In contrast to fossil fuels, regarding the use of bioenergy the whole chain of custody – from forest management practices all the way to the stove or boiler – usually generates domestic employment. An example: To transfer one TJ of wood (=114 solid cubic metres) from the forest to a domestic household – passing several intermediate steps as well as a small district heating system – approximately 168 regional working hours are needed. In detail, these include:

- 16 man hours of forest management and silvicultural measures
- 52 man hours of felling and forwarding to the forest road
- 16 man hours for wood transportation
- 17 man hours for the production of wood chips and the transportation to the district heating plant
- 50 man hours of operation and maintenance of the district heating plant
- 17 man hours for administrative tasks.

For one TJ of firewood to be burned in a logwood boiler, 143 direct regional working hours are necessary; 192 man hours are needed for a tile stove. The operation of an oil heating system secures about 21 direct regional working hours per TJ, the use of a gas heating system only ten.

1 TJ of bioenergy creates 168 regional man hours along the chain of custody

Silvicultural measures: 16 h



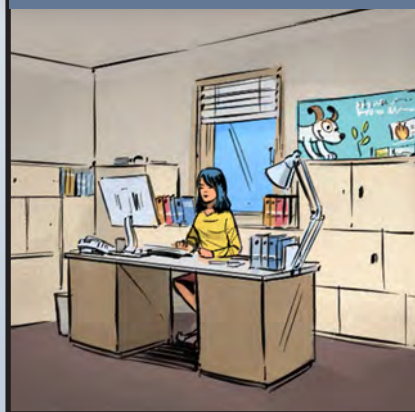
Felling and forwarding: 52 h



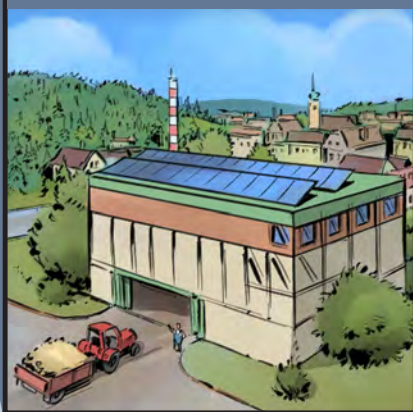
Wood transportation: 16 h



Administrative tasks: 17 h



Operation of district heating plant: 50 h



Production & transport of chips: 17 h





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Seven times more jobs with biomass

Even though 53 percent of heat energy consumption in the KEM Hartberg are covered by fossil energy sources, the fossil system only provides 4.2 regional full-time equivalents (FTE). The biogenic system secures 31 full-time jobs. The direct regional creation of value through maintenance, operation and fuel supply in a biogenic system amounts to 3.8 million € per year; fossil plants create only 0.5 million €. The money drain from the region is about 0.9 million € in a biogenic system, but 7.2 million € if a fossil system is used. Carbon emissions in Hartberg caused by bioenergy amount to 800 tons per year. Heating systems using fuel oil emit 31 100 tons every year.

Scenario with 100 percent bioenergy

A best and a worst case scenario regarding the use of biomass for heating in the Hartberg region was evaluated. In the first scenario (100 percent use of biomass), the yearly maintenance and fuel supply would secure 61 jobs, whereas the other scenario (100 percent fossil fuels) would only retain 8.5 jobs. Maintenance and operation of biomass heating systems could generate 6.5 million € of regional added value opposed to 1.1 million € in the fossil scenario. Annual money drain from the region drops from 15.1 million € in the fossil scenario to 1.6 million € in the biogenic case. Carbon emissions would add up to 58 500 tons in the fossil setting and to only 1 600 tons in the bioenergy scenario.

Regional added value (service, operation) in million €



Cash drain in million €



Direct regional employment (FTE), service and operation



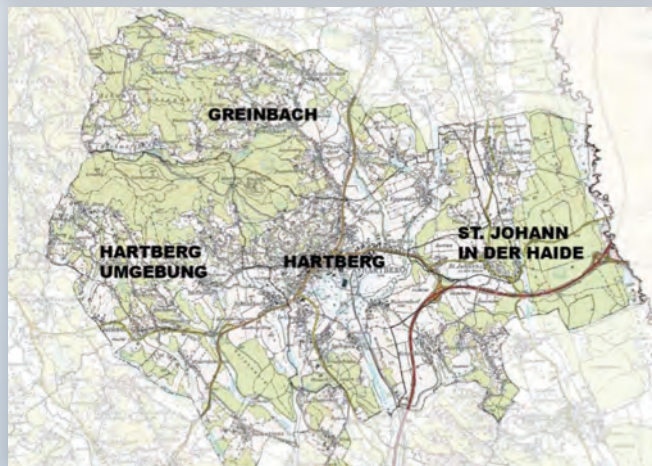
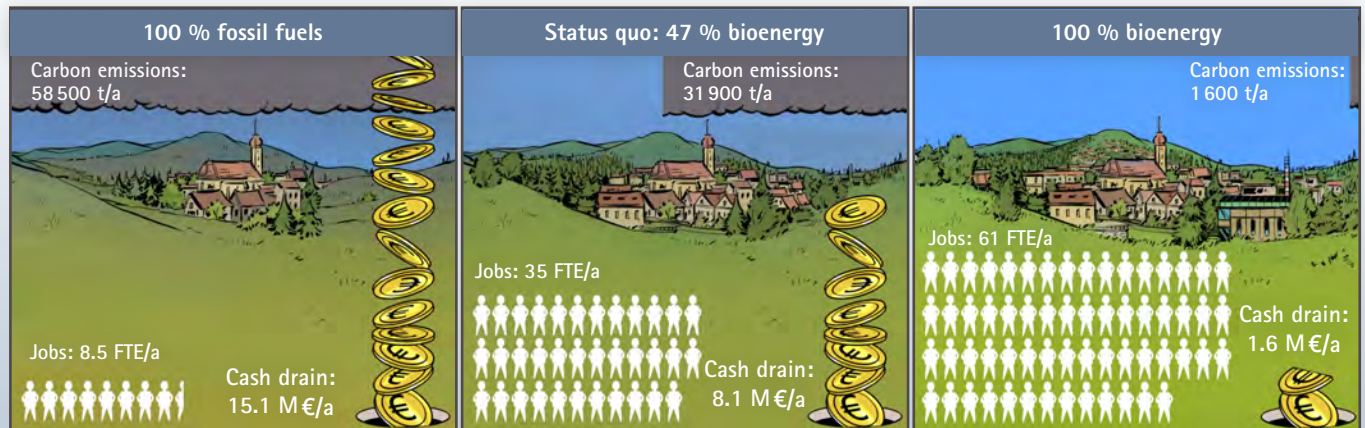
Carbon emissions (1 000 tonnes per year)



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



The Climate and Energy Model Region Hartberg in eastern Styria consists of four communities with a total of 12 600 inhabitants.



The KEM Hartberg can serve as a prime example for many other regions in Austria.

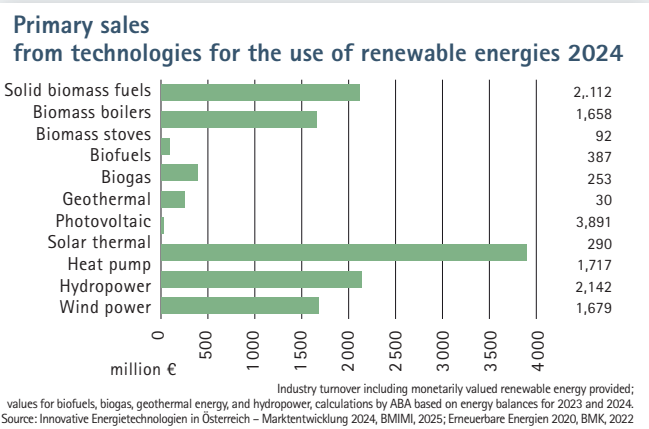
National effects of bioenergy

24 000 jobs in Austria

Thanks to the use of renewable energy sources, more than 54 000 full-time jobs were secured in Austria in the year 2024, approximately 24 000 of them were associated with the biomass sector. A large share of the jobs in the field of bioenergy is related to the fuel supply of facilities processing solid biomass. More than one in four jobs in the renewable energy sector is in the field of solid biomass utilization. With more than 4.5 billion €, the biomass sector makes the largest contribution to total sales (32 percent) among renewable energy sources. A big part of this turnover comes from the provision of combustible material (logwood, wood chips, wood pellets or sawmill by-products).

Boilers and stoves made in Austria

In the year 2024, 20 791 pellet boilers, 3 190 combined firewood and pellet boilers, 4 221 wood log boilers and 2 501 wood chip boilers were sold on the Austrian market. Furthermore some 1 500 pellet stoves, 3 500 cooking stoves and 4 000 wood log stoves were sold on the domestic market. The total turnover of Austrian biomass boiler producers (1 658 million €) as well as of domestic stove manufacturers (92 million €) amounted to 1.75 billion € in the year 2024. This resulted in a total number of 7 000 jobs in Austria.



In the year 2024, technologies for the use of biomass as an energy source generated a turnover of more than 4.5 billion €.



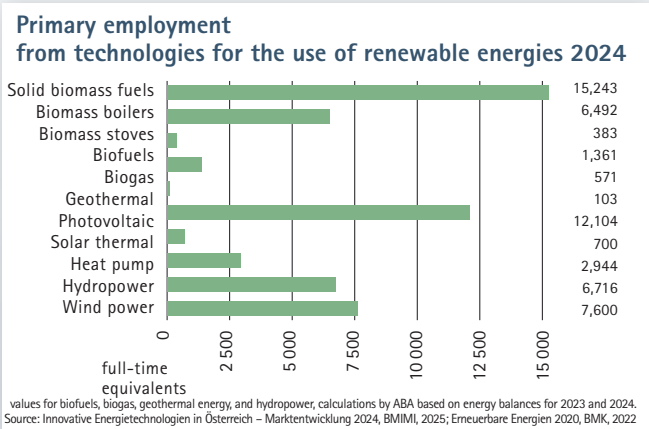
A big part of the effect on the turnover created by renewable energies is accounted for by the allocation of solid biomass fuels.

Hot on the international market

Technologies for the use of bioenergy have a long tradition in Austria, which has resulted in market leadership, patents and research skills. Austrian producers of biomass boilers sell between 60 and 75 percent of their products abroad. In Germany for instance two out of three installed biomass boilers are of Austrian origin. The most important export markets for Austrian biomass boilers are Germany, France and Belgium. In most cases, components for biomass boilers are either produced by the manufacturers themselves or by other domestic enterprises. Austrian companies not only produce the boilers, but also compatible components such as buffer tanks as well as extractor and storage systems.

Getting out of oil and gas

After sales of biomass boilers slumped as a result of low heating oil prices from 2014 onwards, strong growth has been recorded again since 2019. Interest in modern biomass heating systems has increased significantly due to attractive subsidy programs at state and federal level, as well as the uncertain supply situation and sharp rises in oil and gas prices. The implementation of high federal subsidies led to a doubling of the number of wood-fired heating systems sold to 30 703 in the year 2024.



Biomass fosters employment in the region – in 2024, that accounted for 24 000 full-time jobs.



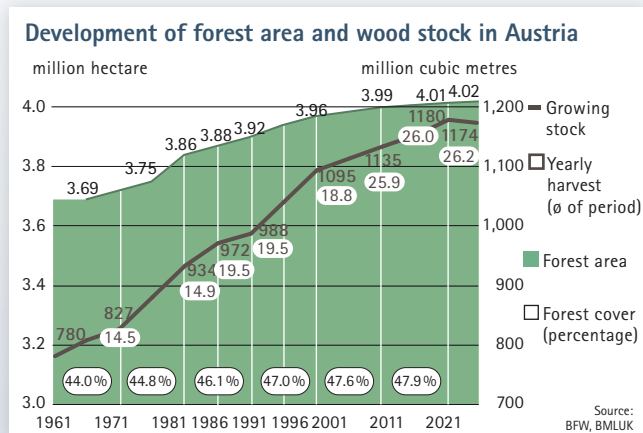
Austrian producers of biomass boilers and stoves provide approximately 7 000 domestic jobs.

Wood stock at a record high

The wood stock in Austrian forests has increased by 51 percent over the past 60 years. However, according to the Austrian Forest Inventory 2018/23, the stock declined slightly for the first time to 1174 million cubic meters due to storm events and bark beetle infestation. With 350 cubic meters per hectare in productive forests, Austria is one of the countries with the highest per-hectare stocks worldwide. Spruce accounts for 60 percent of the timber stock, with 708000 cubic meters. However, due to global warming, its share of the forest area is declining.

New chances for forest owners

About 300000 persons in Austria generate income from forest management. Until a few decades ago, forest owners couldn't sell industrial roundwood or wood chips in a cost-covering way. Hence the first thinning measures were often omitted, even though they belong to the most important forest management practices. Only trees that are provided sufficient growing space can develop into strong, stable and valuable individuals. Forest management practices also help in achieving a good nutrient balance and microclimate and they foster soil organisms as well. Due to increased demand by the bioenergy sector, thinning measures are more common nowadays. Thus more wood is available on the market.



Despite an increased wood harvest, growing stock in Austrian forests has risen significantly over the past decades.



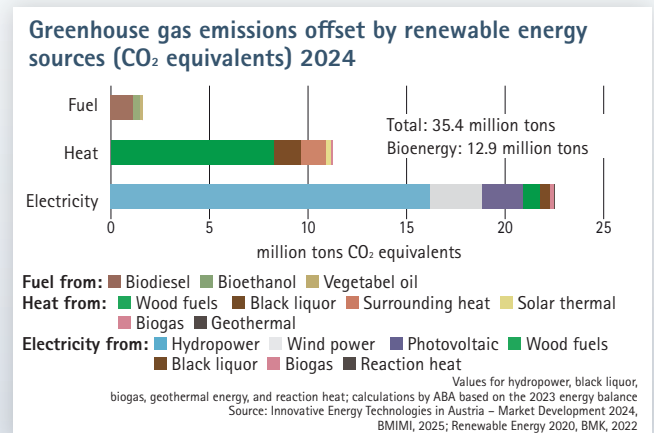
Wood fuel products are often by-products of harvesting as well as of the processing of stem wood.

Energy wood stabilises the market

Forest owners will continue to earn their principal income with more valuable products like saw logs, but the continuous and reliable demand for energy wood which is independent from the timber market helps to stabilise the roundwood prices. Due to forest conversion to climate-friendly mixed stands, numerous newly established stands will be ready for initial thinning in the next 20 to 30 years. The accumulation of small-diameter hardwood timber offers high potential for energy wood.

Bioenergy: protecting the climate

In the year 2024, the use of renewable energy reduced the carbon emissions in Austria by 35.4 million tons. The utilisation of bioenergy alone accounted for around 13 million tons. Besides the beneficial effects for the climate, the Austrian economy is able to save millions of Euros in the field of carbon emission trading. In the bioenergy sector, wood fuels for heat generation account for the largest share of CO₂ avoidance at 75 percent. Replacement of oil heating systems by modern biomass boilers has led to a decrease of carbon emissions by 54 percent since 1990 in the space heating sector. The transport sector on the other hand has experienced an increase of over 40 percent.



Through the use of renewable energies, Austria saved the emission of 35.4 million tons of CO₂, about 13 million tons are offset by bioenergy.



First thinnings during forest conversion to climate-fit mixed stands will bring large quantities of energy wood onto the market.



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An event by



 Federal Ministry
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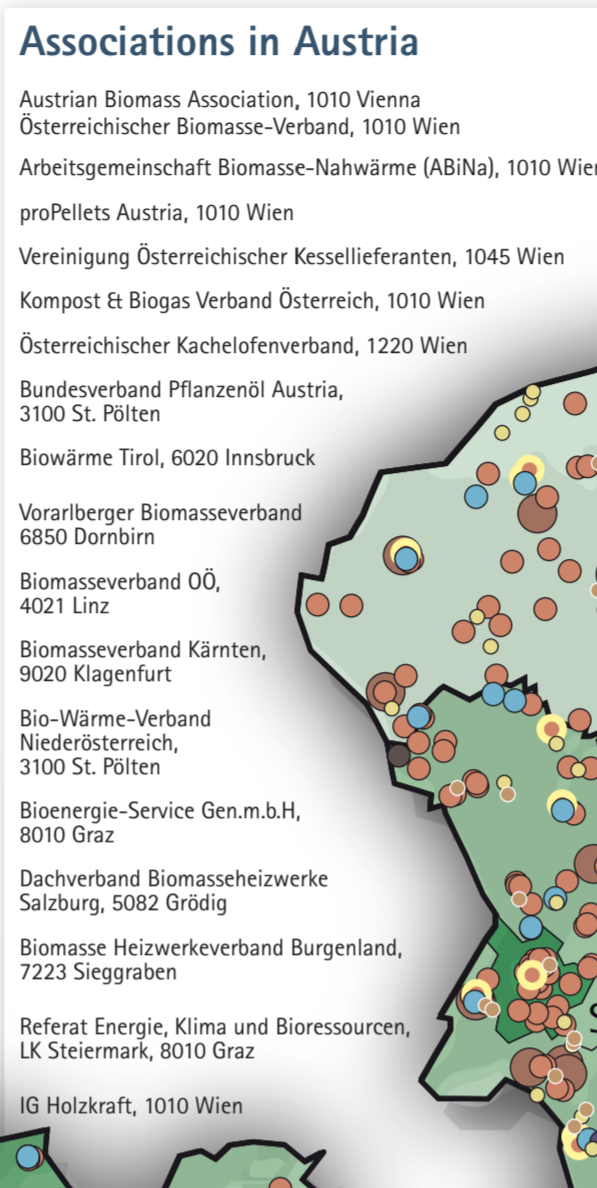
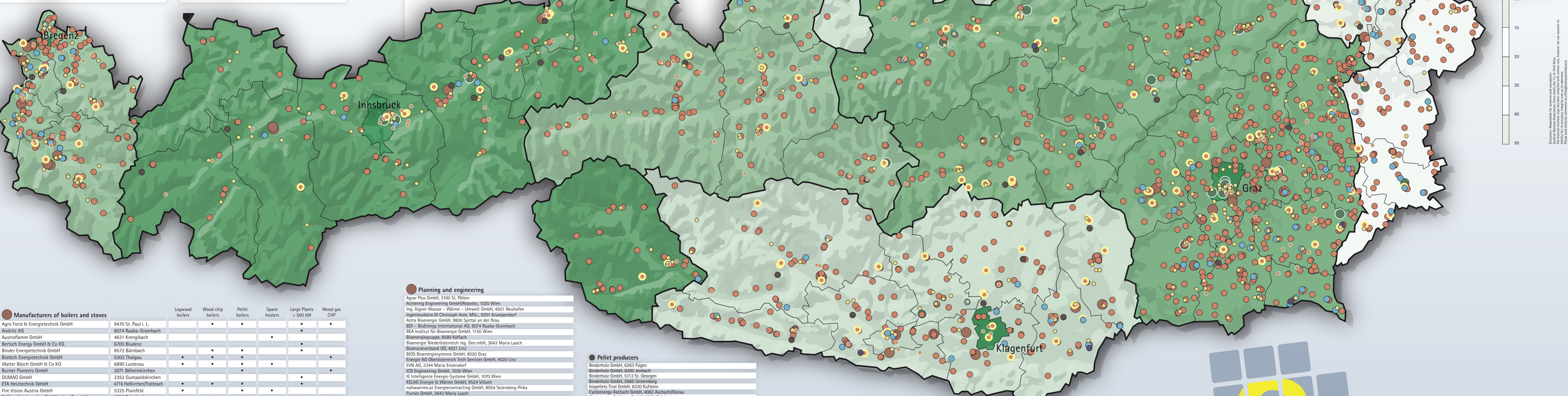
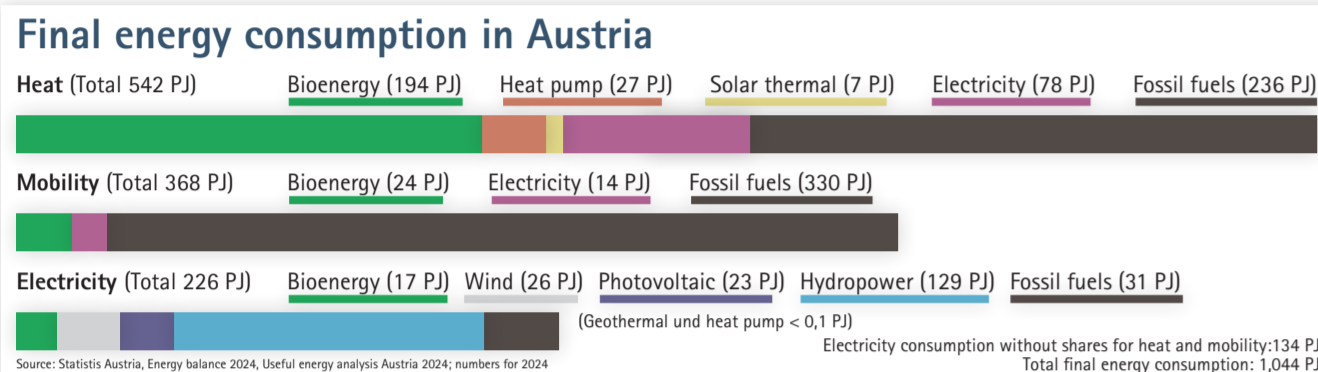
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