Bioenergy in Austria

A factor creating added value

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Welcome to the
Central European
Biomass Conference
January 2023, Graz, Austria

AUSTRIA SURPRISINGLY INGENIOUS

Österreichischer Biomasse-Verband
Austrian Biomass Association

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Federal Ministry
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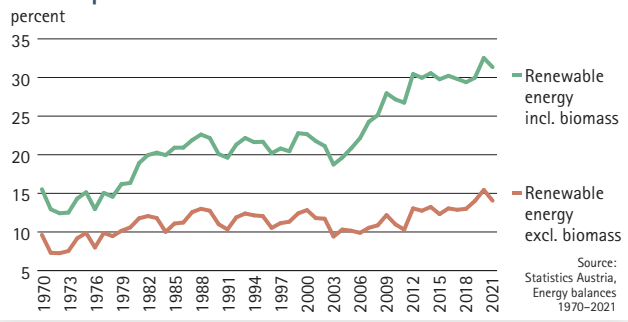
Agriculture, Forestry, Regions
and Water Management

The impact of biomass ...

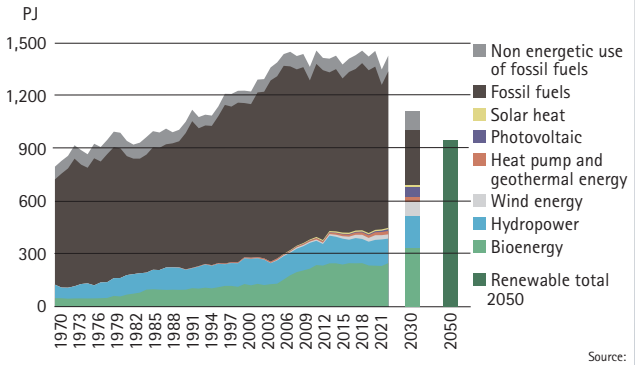
Over the past decades, the bioenergy sector has become a mainstay of Austria's energy accommodation. Biomass provides a substantial contribution to Austria's transition towards a sustainable and climate-friendly energy system, creating domestic added value as well as employment and spending power. Austrian 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



Without bioenergy, the share of renewable energy has barely exceeded 15 percent of the total energy consumption in recent decades.

Development of gross domestic energy consumption 1970 to 2021 and potentials for 2030 and 2050



Source: Statistics Austria, Energy balances 1970–2021, potential of renewable energy according to renewable energy associations, reduction of gross domestic consumption 2030 referring to scenario WAM plus, Environment Agency Austria

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

The biggest domestic energy source

Biomass is by far the most important domestic energy source. In 2021, 47 percent of the total domestic energy volume were provided by biomass, followed by hydropower which provided 27 percent. Biomass is Austria's most relevant renewable energy source, accounting for 55 percent of the total amount. Once again, hydropower occupies the second rank, accounting for 31 percent.

EU goals: not without bioenergy

Between the years 1990 and 2021, the share of bioenergy of the total energy consumption in Austria has evolved from 9.1 to 17.3 percent even though Austrian energy consumption increased by 36 percent during that period. This was possible because the total use of biomass now amounts to more than 2.5 times the volume of the year 1990.

According to European Union requirements, Austria was bound to attain a share of 34 percent of renewable energy in its total energy mix by the year 2020. Due to the lower consumption of crude oil during the pandemic, this target was exceeded at 36.5 percent. Without bioenergy however, the share of renewable energies would drop down to about 15 percent at most. It is therefore obvious that without bioenergy the exit from nuclear power and fossil fuels is not feasible.

Forests: main source of raw material

The most important source of raw material for the biomass sector are our forests. In 2021, they provided 83 percent of Austria's biomass volume; the rest came from the agricultural and the waste sectors. If its potential is consistently made available, Austria's use of biomass could increase by a further 38 percent by the year 2030. About half of this potential for development is associated with the agricultural sector and half to the forestry sector. In practically all existing energy transition scenarios, biomass is developing into the most important energy source nationwide and will overtake oil and natural gas in the medium term.

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

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

... for our energy system

Heat market dominant

Traditionally, biomass in Austria is used for heat production. In 2021, heating consumed 84 percent of the bioenergy production, followed by biofuel with a share of 9 percent and green electricity from biomass and biogas with a share of 7 percent. Around three quarters of biomass heat are used in single combustion systems, the remaining 25 percent are used for district heating which showed the highest increase, its production having almost quadrupled since 2005.

Biomass holds a share of 31 percent of the total heat energy mix. For the heating of dwellings in Austria, it is by far the most popular source of energy with a share of more than 40 percent of the total energy use. 670 000 Austrian households use primarily wood-burning heating devices to keep their living spaces warm. A distribution grid of about 2 400 biomass district heating stations makes sure that large parts of Austria are provided with climate-friendly heating.

Energy for mobility: a challenge

With a share of 6.0 percent, biomass is the most noteworthy renewable energy source in the transport sector. Despite increasing new registrations of electric cars, the share of electricity in road traffic is only 1.8 percent. In addition to further development of renewable energy sources, new mobility concepts fostering the public transport sector as well as car sharing are vital to contain carbon emission levels from the combustion of fossil fuels.

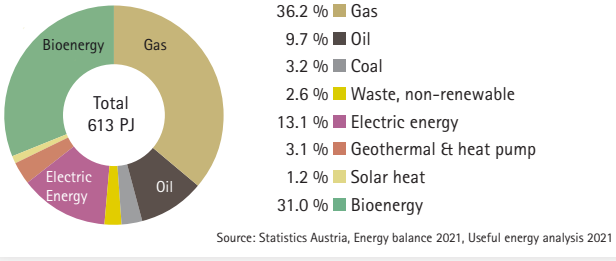
Green power, whatever the weather

With a share of 6.7 percent in electricity generation, biomass is the third most 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.

Outlook

Future prospects by the year 2050 envision increased use of biomass as substitute for natural gas, for electricity generation, high-temperature processes in industry and in the transport sector. Regarding the latter biofuels could gain in importance mostly in the field of aviation.

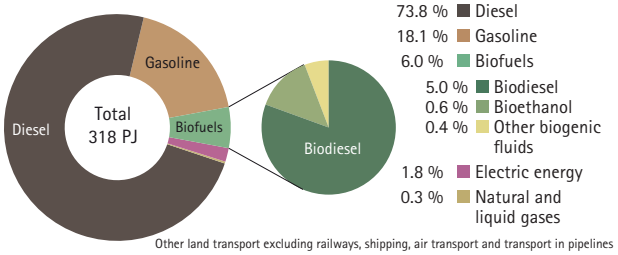
Final energy consumption, heating, 2021



Source: Statistics Austria, Energy balance 2021, Useful energy analysis 2021

For heating, biomass is Austria's second most important energy source after natural gas.

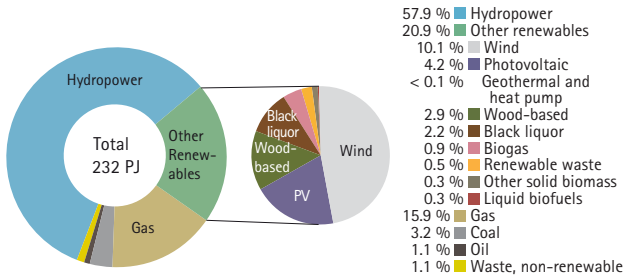
Final energy consumption, road transport, 2021



Other land transport excluding railways, shipping, air transport and transport in pipelines
Source: Statistics Austria, Energy balance 2021

For transportation it is most difficult to replace fossil fuels – biomass covers about 6 percent of the total consumption in road transport.

Final energy consumption, electricity, 2021



Source: Statistics Austria, Energy balance 2021

Biomass covers 6.7 percent of electricity generation, the biggest part of that is produced by wood CHP plants.

Approximately 84 percent of Austria's bioenergy is used for the generation of heat.

The production of district heating based on biomass has almost quadrupled over the last 15 years.

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.

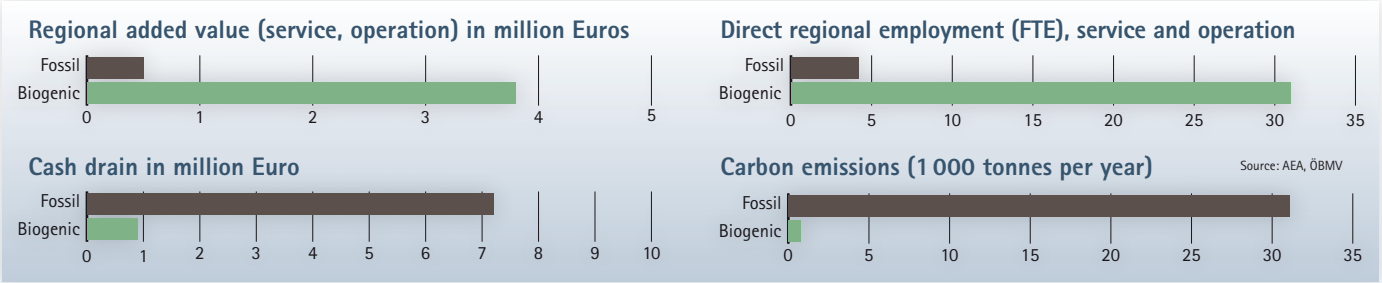
1 TJ of bioenergy creates 168 regional man hours along the chain of custody

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 Euro per year; fossil plants create only 0.5 million Euro. The money drain from the region is about 0.9 million Euro in a biogenic system, but 7.2 million Euro 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.

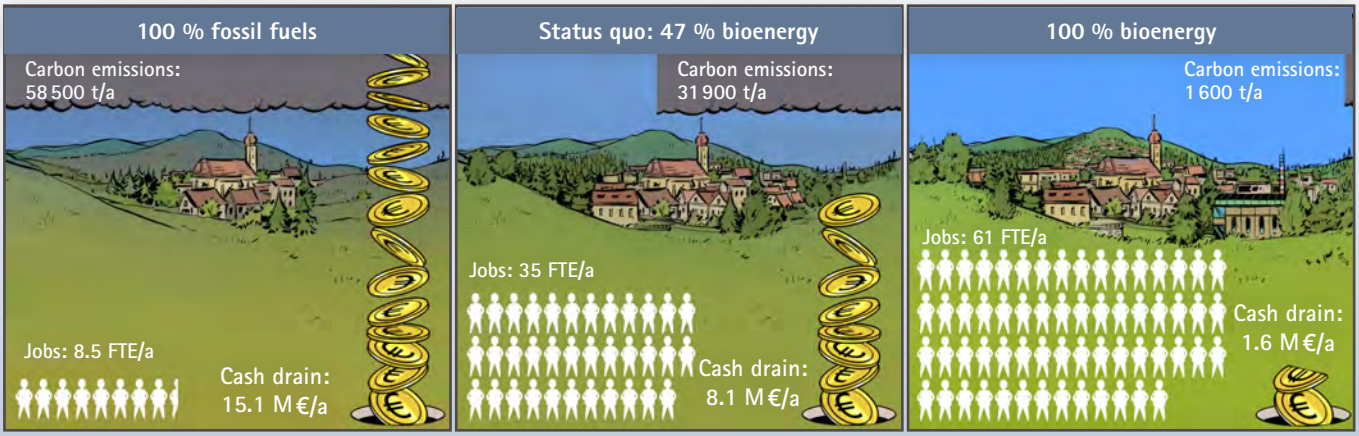
Scenario with 100 percent bioenergy

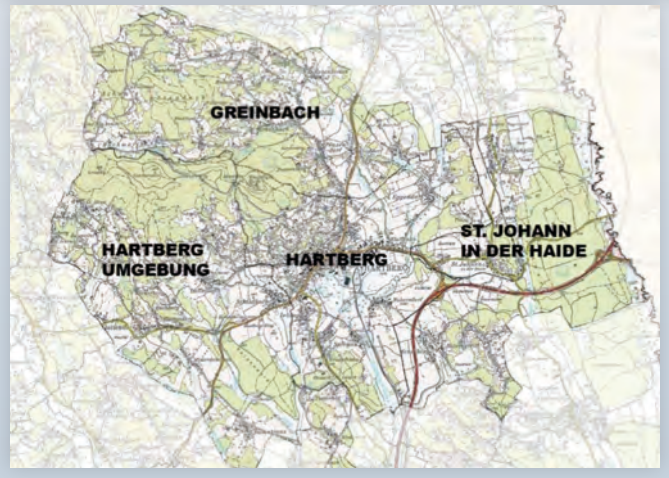
A best and a worst case scenario regarding the use of biomass for heating in the Hartberg region was evaluated. In the first scenario (100 percent use of biomass), the yearly maintenance and fuel supply would secure 61 jobs, whereas the other scenario (100 percent fossil fuels) would only retain 8.5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



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 44 000 full-time jobs are secured in Austria, 24 000 of them are 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. Among the renewable energy branch more than every second full-time job deals with the use of solid biomass. Generating 38 percent of the total turnover in the field of renewable energy sources, biomass is the sector's biggest contributor with almost 3.1 billion Euro. The bigger part of this turnover – about 1.6 billion Euro – 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 2021, 12 247 pellet boilers, 1 531 combined firewood and pellet boilers, 2 750 wood log boilers and 2 850 wood chip boilers were sold on the Austrian market. Furthermore some 2 400 pellet stoves, 5 500 cooking stoves and 8 000 wood log stoves were sold on the domestic market. The total turnover of Austrian biomass boiler producers (1 580 million Euro) as well as of domestic stove manufacturers (132 million Euro) amounted to 1.7 billion Euro in the year 2021. This resulted in a total number of 7 000 jobs in Austria.

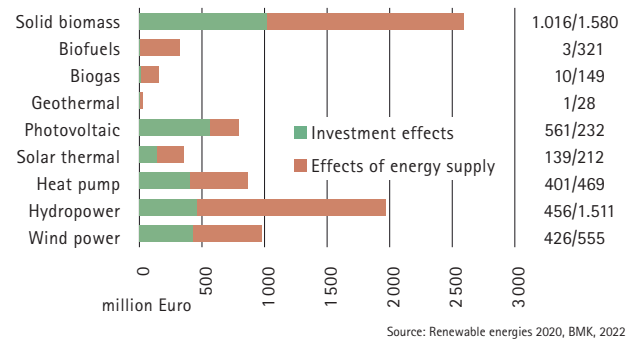
Hot on the international market

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 about 80 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 Italy. 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 collapsed in 2014 as a result of low heating oil prices, high growth has been recorded again since 2019. Interest in modern biomass heating systems has increased significantly due to attractive funding campaigns at state and federal level as well as the sharp rise in oil and gas prices. In 2021, around 19 000 boilers were sold, 41 percent more biomass systems than in the previous year, and the sales figures for pellet heating systems up to 100 kW were higher than ever before.

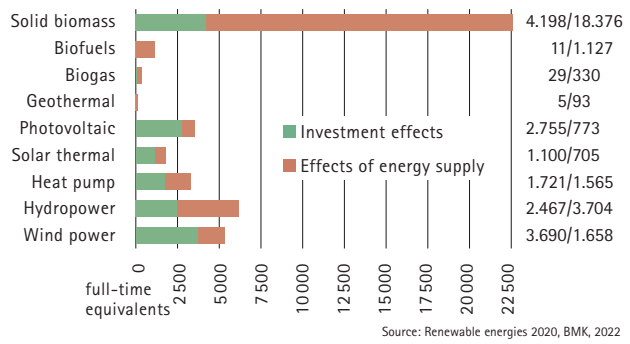
Primary sales from technologies for the use of renewable energies 2020



Source: Renewable energies 2020, BMK, 2022

In the year 2020, technologies for the use of biomass as an energy source generated a turnover of more than 3 billion Euro.

Primary employment from technologies for the use of renewable energies 2020



Source: Renewable energies 2020, BMK, 2022

Biomass fosters employment in the region – in 2020, that accounted for 24 000 full-time jobs.

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

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

Wood stock at a record high

Growing stock in domestic forests has been on the rise throughout the past few decades and has reached a record high of 1 216 billion solid cubic metres according to the Austrian Forest Inventory. Especially in small-scale private forests (which cover more than 50 percent of the total forest area) the harvest of wood is still significantly lower than the increment. The National Forest Inventory stated reserves for thinning measures and other usages of 250 million solid cubic metres in the forests, both high-quality saw logs as well as energy wood.

New chances for forest owners

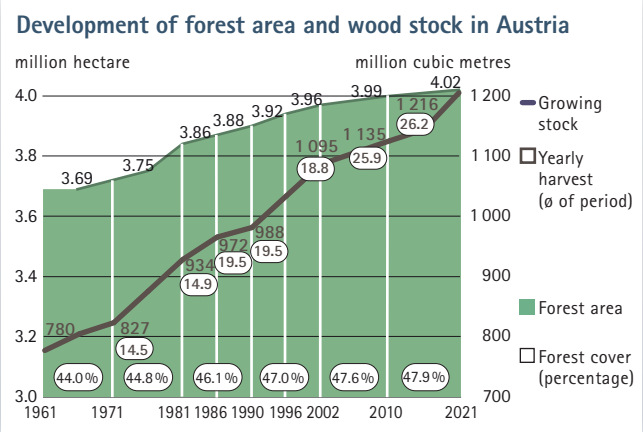
About 300 000 persons in Austria generate income from forest management. Until a few decades ago, forest owners couldn't sell industrial roundwood or wood chips in a cost-covering way. Hence the first thinning measures were often omitted, even though they belong to the most important forest management 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.

Energy wood stabilises the market

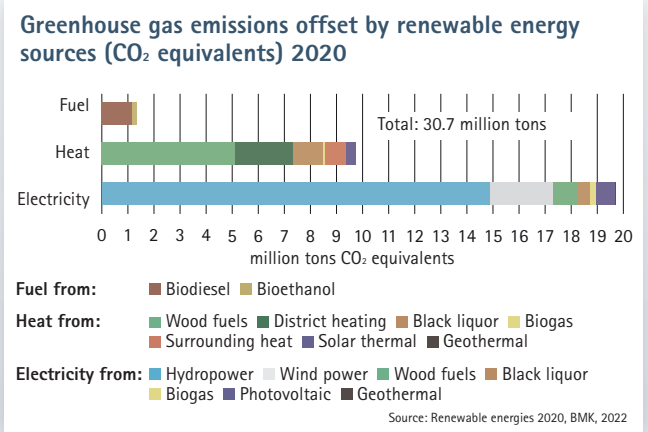
Forest owners will continue to earn their principal income with more valuable products like saw logs, but the continuous and reliable demand for energy wood which is independent from the timber market helps to stabilise the roundwood prices. The energetic use of raw timber helps fighting the spreading of the bark beetle, because beetle-infested wood is chopped before the beetles are fully developed. This protects the growing stock of the Austrian forest owners from massive loss in value.

Bioenergy: protecting the climate

In 2020, the use of renewable energy reduced the carbon emissions in Austria by 30.7 million tons. The utilisation of bioenergy alone accounted for more than 11 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, the biggest part of the carbon emissions offset, with a share of 45 percent, comes from wooden biomass used for heat generation. Replacement of oil heating systems by modern biomass boilers has led to a decrease of carbon emissions by 38 percent since 1990 in the space heating sector. The transport sector on the other hand has experienced an increase of over 50 percent.

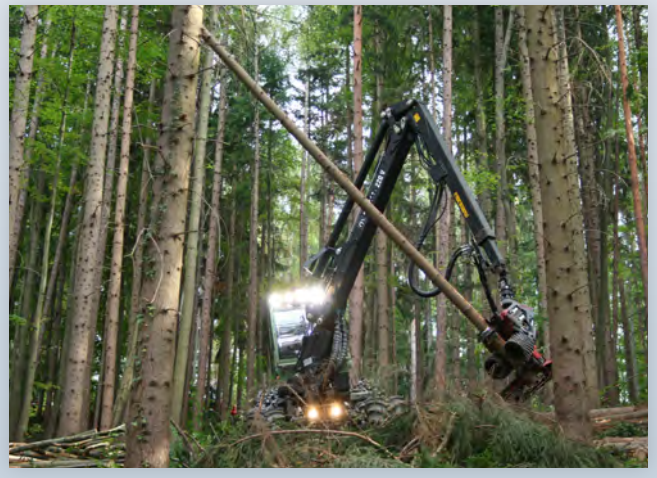


Despite an increased wood harvest, growing stock in Austrian forests has risen significantly over the past decades.



Through the use of renewable energies, Austria saved the emission of 30.7 million tons of CO_2, over 11 million tons are offset by bioenergy.

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



As a result of the utilisation of energy wood, formerly neglected first thinning measures are now cost-covered.

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kelag – Energie & Wärme

SURE – Sustainable Resources Verification Scheme GmbH

GREEN ENERGY – Risk Concept

Herz® binder

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www.biomasseverband.at

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Austrian Bioenergy Map

Österreichischer Biomasse-Verband
Austrian Biomass Association

Austria — Surprisingly Ingenious

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Agriculture, Forestry, Regions and Water Management

Effects of renewable energies

	Bioenergy	Renewable energies total
Turnover	3,097 million Euro	8,070 million Euro
Full-time jobs	24,071 FTE	44,308 FTE
Greenhouse gas emissions offset	11.4 million tons	30.7 million tons

Soure: Renewable energies 2020, BMK, 2022; numbers for 2020

Final energy consumption in Austria

Heat (Total 613 PJ): Bioenergy (190 PJ), Heat pump (19 PJ), Solar thermal (7 PJ), Electricity (80 PJ), Fossil fuels (316 PJ)

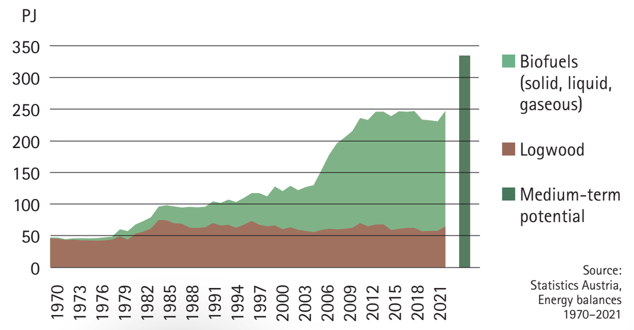
Mobility (Total 371 PJ): Bioenergy (20 PJ), Electricity (12 PJ), Fossil fuels (339 PJ)

Electricity (Total 232 PJ): Bioenergy (16 PJ), Wind (23 PJ), Photovoltaic (10 PJ), Hydropower (134 PJ), Fossil fuels (49 PJ)

(Geothermal und heat pump < 0,1 PJ)
Electricity consumption without shares for heat and mobility:140 PJ
Total final energy consumption: 1,123 PJ

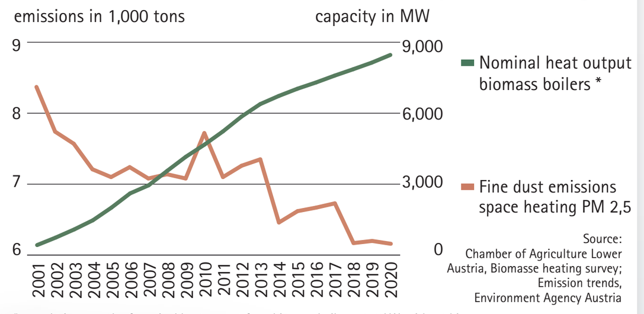
Source: Statistis Austria, Energy balance 2021, Useful energy analysis Austria 2021; numbers for 2021

Development of gross domestic consumption of bioenergy 1970 to 2021



Source: Statistics Austria, Energy balances 1970–2021

Development of new installed capacity of biomass boilers and fine dust emissions of space heating



Source: Chamber of Agriculture Lower Austria, Biomasse heating survey; Emission trends, Environment Agency Austria

* cumulative growth of nominal heat output from biomass boilers <100 kW, without biomass stoves

Bioenergy branch in Austria

Amount Colour Sector

777 Bio-heat partners
616 Bio-heat plumbing companies and
161 Bio-heat chimney sweeping companies

268 Stove-fitting companies

280 Biogas plants
84 MW capacity, 629 GWh electricity/year, 179 GWh heat/year, 138 GWh biomethan/year, 1.5 million tons of fertiliser/year

20 Biofuels
2 Bioethanol plant
8 Biodiesel plants
10 Vegetable oil plants

2,397 Biomass district heating plants
2,192 MW capacity
6,937 GWh heat/year

159 Biomass CHP-plants
303 MW electric capacity,
2,177 GWh electricity/year, 3,834 GWh heat/year

48 Pellet producers
1,607,000 tons of pellets/year

58 Research centers, colleges and schools
20 Research facilities
13 Colleges and universities
25 High schools and training schools

101 Biomass technologies
47 Boiler and stove manufactures
23 Planning and engineering
17 Supply industry
14 Wood chippers/logwood technology

Associations in Austria

Austrian Biomass Association, 1010 Vienna
Österreichischer Biomasse-Verband, 1010 Wien

Arbeitsgemeinschaft Biomasse-Nahwärme (ABiNa), 1010 Wien

proPellets Austria, 1010 Wien

Vereinigung Österreichischer Kessellieferanten, 1045 Wien

Kompost & Biogas Verband Österreich, 1010 Wien

Österreichischer Kachelofenverband, 1220 Wien

Bundesverband Pflanzenöl Austria, 3100 St. Pölten

Biowärme Tirol, 6020 Innsbruck

Vorarlberger Biomasseverband 6850 Dornbirn

Biomasseverband OÖ, 4021 Linz

Biomasseverband Kärnten, 9020 Klagenfurt

Bio-Wärme-Verband Niederösterreich, 3100 St. Pölten

Bioenergie-Service Gen.m.b.H, 8010 Graz

Dachverband Biomasseheizwerke Salzburg, 5082 Grödig

Biomasse Heizwerkeverband Burgenland, 7223 Sieggraben

Referat Energie, Klima und Bioressourcen, LK Steiermark, 8010 Graz

IG Holzkraft, 1010 Wien

Manufacturers of boilers and stoves

		Logwood boilers	Wood chip boilers	Pellet boilers	Space heaters	Large Plants > 500 kW	Wood gas CHP
Agro Forst & Energietechnik GmbH	9470 St. Paul i. L.		•	•		•	•
Andritz AG	8074 Raaba-Grambach					•	
Austroflamm GmbH	4631 Krenglbach				•		
Bertsch Energy GmbH & Co KG	6700 Bludenz					•	
Binder Energietechnik GmbH	8572 Bärnbach		•	•		•	
Biotech Energietechnik GmbH	5303 Thalgau	•	•	•			•
Walter Bösch GmbH & Co KG	6890 Lustenau	•	•	•	•		
DUMAG GmbH	2352 Gumpoldskirchen					•	
ETA Heiztechnik GmbH	4716 Hofkirchen/Trattnach	•	•	•		•	
Fire Vision Austria GmbH	5325 Plainfeld	•		•	•		
Fröling Heizkessel-u. Behälterbau GesmbH	4710 Grieskirchen	•	•	•		•	•
Gast – Metallwaren GmbH & Co KG	4407 Steyr	•			•		
Glock ecotech GmbH	9112 Griffen						•
Guntamatic Heiztechnik GmbH	4722 Peuerbach	•	•	•		•	
Haas+Sohn Ofentechnik GmbH	5412 Puch bei Hallein			•	•		
Hallach GmbH	3040 Neulengbach				•		
Hargassner Ges mbH	4952 Weng	•	•	•		•	•
Hargassner Industry GmbH	4860 Lenzing					•	
HDG Bavaria GmbH	2871 Zöbern	•	•	•			
HZA GmbH	5310 Mondsee		•	•		•	
Herz Energietechnik GmbH	7423 Pinkafeld	•	•	•		•	•
Hoval Gesellschaft m.b.H.	4614 Marchtrenk			•			
Kesselbau Sutterlüty GmbH	6971 Hard a. Bodensee					•	
Kohlbach Energieanlagen GmbH	9400 Wolfsberg					•	
System Kurri – Marke der MSW GmbH	2700 Wiener Neustadt		•	•		•	
KWB Energiesysteme GmbH	8321 St. Margarethen/Raab	•	•	•			
Lohberger Heiz&Kochgeräte Technologie GmbH	5231 Schalchen	•			•		
Mawera Holzfeuerungsanlagen GmbH	6971 Hard a. Bodensee		•	•		•	
ÖkoFEN Forschungs- u. Entwicklungs GesmbH	4133 Niederkappel			•			
Olymp Werk GmbH	6430 Ötztal-Bahnhof	•	•	•	•		
Perhofer GmbH	8190 Birkfeld	•	•	•	•	•	
Pöllinger Heizungstechnik GmbH	3200 Ober-Grafendorf		•	•			
Polytechnik Luft- u. Feuerungstechnik GmbH	2564 Weissenbach		•	•		•	
RIKA Innovative Ofentechnik GmbH	4563 Micheldorf				•		
Santer Solarprofi GesmbH	6430 Ötztal Bahnhof	•	•	•			
Schmid energy solutions GmbH	8501 Lieboch	•	•	•		•	•
Solarfocus GmbH	4451 St. Ulrich/Steyr	•	•	•			
Sommerauer SL-Technik GmbH	5120 St. Pantaleon		•	•			
Strebelwerk GmbH	2700 Wiener Neustadt	•	•	•	•	•	
SynCraft Engineering GmbH	6130 Schwaz						•
TM-Feuerungsanlagen GmbH	8271 Bad Waltersdorf		•			•	
Tropenglut GmbH	4407 Dietach		•			•	
Urbas Maschinenfabrik GesmbH	9100 Völkermarkt					•	•
VAS Energy Systems GmbH	5071 Wals-Siezenheim					•	
Viessmann Gesellschaft m.b.H.	4641 Steinhaus bei Wels	•		•			
Windhager Zentralheizung GmbH	5201 Seekirchen/Wallersee	•	•	•			
WTI Wärmetechnische Industrieanlagen GmbH	3380 Pöchlarn					•	

Planning und engineering

Agrar Plus GmbH, 3100 St. Pölten
Aichernig Engineering GmbH/Repotec, 1020 Wien
Ing. Aigner Wasser – Wärme – Umwelt GmbH, 4501 Neuhofen
Ingenieurbüro DI Christoph Aste, MSc., 9201 Krumpendorf
Astra Bioenergie GmbH, 9800 Spittal an der Drau
BDI – BioEnergy International AG, 8074 Raaba-Grambach
Bioenergiegruppe, 8580 Köflach
Bioenergie Niederösterreich reg. Gen.mbH, 3643 Maria Laach
Biomasseverband Oberösterreich, 4021 Linz
BIOS Bioenergiesysteme GmbH, 8020 Graz
Energie AG Oberösterreich Tech Services GmbH, 4020 Linz
EVN AG, 2344 Maria Enzersdorf
ICB Engineering GmbH, 1030 Wien
IE Intelligente Energie-Systeme GmbH, 1070 Wien
KELAG Energie & Wärme GmbH, 9524 Villach
nahwaerme.at Energiecontracting GmbH, 8054 Seiersberg-Pirka
Purnes GmbH, 3643 Maria Laach
Regionalwärme Gruppe GmbH, 9071 Köttmannsdorf
Ing. Leo Riebenbauer GmbH, 8243 Pinggau
Ringhofer & Partner GmbH, 8243 Pinggau
SEEGEN Salzburger Erneuerbare Energie Gen.m.b.H., 5082 Grödig
SWET GmbH, 9220 Velden am Wörthersee
WRS Energie- u. Baumanagement GmbH, 4040 Linz

Supply industry, components, measurement technique

aqotec Gmbh, 4890 Weißenkirchen im Attergau
Austroflex Rohr-Isoliersysteme GmbH, 9585 Gödersdorf
Bilfinger GmbH, 5412 Puch/Salzburg
Flowtech Industrietechnik GmbH, 8046 Graz
Gerhard Gollner, 2346 Maria Enzersdorf
Heger Edelstahl GesmbH, 4784 Schardenberg
isoplus Fernwärmetechnik GmbH, 3192 Hohenberg
Kamstrup Austria GmbH, 1200 Wien
KE KELIT Gesellschaft m.b.H., 4020 Linz
Kontinentale Frauenthal Handel GmbH, 2201 Gerasdorf
Radius-Kelit Infrastructure GesmbH, 4300 St. Valentin
Rath AG, 1010 Wien
Schaller Messtechnik GmbH, 8181 St. Ruprecht an der Raab
Scheuch GmbH, 4971 Aurolzmünster
Thermaflex Österreich, 1210 Wien
WILO Pumpen Österreich GmbH, 2351 Wiener Neudorf
Zauner Anlagentechnik GmbH, 4702 Wallern an der Trattnach

Wood chippers and logwood technology

Auer Landmaschinenbau Gesellschaft m.b.H., 4202 Hellmonsödt
Binderberger Maschinenbau GmbH, 5144 St. Georgen a. F.
Eschlböck Maschinenfabrik GmbH, 4731 Prambachkirchen
HZA GmbH, 5310 Mondsee
Jenz Österreich GmbH, 3072 Kasten
Komptech GmbH, 8130 Frohnleiten
Lasco Heutechnik GmbH, 4891 Pöndorf
Lindner-Recyclingtech GmbH, 9800 Spittal a. d. Drau
Mus-Max GmbH, 8522 Groß St. Florian
Neuson Forest GmbH, 4614 Marchtrenk
Posch GmbH, 8430 Leibnitz
Technisches Büro für Forstwirtschaft Renner, 4723 Natternbach
Vermeer AG – Niederlassung Grein, 4360 Grein
Westtech Maschinenbau GmbH, 4731 Prambachkirchen

Pellet producers

Binderholz GmbH, 6263 Fügen
Binderholz GmbH, 6200 Jenbach
Binderholz GmbH, 5113 St. Georgen
Binderholz GmbH, 5585 Unternberg
Cycleenergy Aschach GmbH, 4082 Aschach/Donau
Cycleenergy Gaishorn GmbH, 8783 Gaishorn
Cycleenergy Gresten GmbH, 3264 Gresten
EHO Pellets GmbH, 8580 Köflach
Franz Eigl GmbH, Waldviertel Pellets, 3532 Rastenfeld/Zwettl
Ennstal-Pellets GmbH, 4462 Reichraming
Enzlmüller, 4743 Peterskirchen
Eschelmüller Holz GmbH, 3923 Rothfarn
FM Pellets GmbH, 7341 St. Martin
Glechner Ges.m.b.H., 5230 Mattighofen
Glechner Ges.m.b.H., 4664 Oberweis
Hasslacher Hermagor GmbH - Norica plus, 9620 Hermagor
Hasslacher Preding Holzindustrie GmbH, 8504 Preding
Holz-Bauer KG, 8183 Floing
Holz Falch GmbH & CoKG, 6580 St. Anton am Arlberg
Kärntner Pellets Wood Energy GmbH, 9330 Althofen
Franz Kirnbauer KG, 2630 Ternitz
Labek Biopellets, 6330 Kufstein
Ländle Pellets, 6850 Dornbirn
Mafi Naturholzboden GmbH, 5204 Steindorf b. Strw.
MAK Holz GmbH & Co KG, 9111 Haimburg
Mayr-Melnhof Holz Leoben GmbH, 8700 Leoben
Mayr-Melnhof Holz Reuthe GmbH, 6870 Reuthe
Nawaro Energie Betrieb GmbH, 3800 Göpfritz an der Wild
Johann Pabst Holzindustrie GmbH, 8740 Zeltweg
PelletsOne GmbH, 7042 Antau
Pfeifer Holding GmbH, 6460 Imst
Pfeifer Holding GmbH, 6250 Kundl
prothermpellets OG, 2763 Pernitz
RZ Pellets Amstetten GmbH, 3300 Amstetten
RZ Pellets GmbH, 2601 Sollenau
RZ Pellets GmbH, 3370 Ybbs/Donau
RZ Pellets Leiben GmbH, 3652 Leiben bei Melk
RZ Pellets Liebenfels GmbH, 9556 Liebenfels
RZ Pellets Vöcklamarkt GmbH, 4870 Vöcklamarkt
RZ Pellets Wiesenau GmbH, 9462 Bad St. Leonhard
Salzburg Pellets GmbH, 5441 Abtenau
Schmidt-Energieproduktions GmbH, 2870 Aspang
Schößwendter Holz GmbH, 5760 Saalfelden
Peter Seppele Gesellschaft m.b.H., 9710 Feistritz/Drau
Peter Seppele Gesellschaft m.b.H., 9751 Sachsenburg
Sturmberger Pelletsproduktion GmbH, 4600 Wels
Weinsberg Pellets GmbH, 3665 Bärnkopf
Andreas Wiesbauer GmbH, 3192 Hohenberg

Research facilities

ACIB GmbH – Austrian Centre of Industrial Biotechnology, 8010 Graz
AEE Arbeitsgemeinschaft Erneuerbare Energie NÖ-Wien, 2120 Wolkersdorf
AEE INTEC – Institut für Nachhaltige Technologien, 8200 Gleisdorf
AGES, 1220 Wien
AIT Austrian Institute of Technology GmbH, 1210 Wien
alpS GmbH, 6020 Innsbruck
BEST – Bioenergy and Sustainable Technologies GmbH, 8010 Graz
BEST – Bioenergy and Sustainable Technologies GmbH, 3250 Wieselburg
BFW – Bundesforschungszentrum für Wald, 1131 Wien
BIOS Bioenergiesysteme GmbH, 8020 Graz
e7 energy innovation & engineering, 1020 Wien
GrAT - Gruppe zur Förderung der Angepassten Technologie, 1040 Wien
Güssing Energy Technologies GmbH, 7540 Güssing
Holzforschung Austria, 1030 Wien
IFA Tulln, Department für Agrarbiotechnologie, 3430 Tulln
Joanneum Research ForschungsgesmbH, 8010 Graz
Kompetenzzentrum Holz GmbH, 4040 Linz
OFI Technologie & Innovation GmbH, 1030 Wien
Österreichische Energieagentur, 1150 Wien
Versuchs- und Forschungsanstalt der Hafner, 1220 Wien

Colleges and universities

BLT Wieselburg, HBLFA Francisco Josephinum, 3250 Wieselburg
Fachhochschule Technikum Wien, 1200 Wien
FH Burgenland, 7423 Pinkafeld
FH Oberösterreich, 4600 Wels
FH Wiener Neustadt, Campus Wieselburg, 3250 Wieselburg
Johannes Kepler Universität Linz, 4040 Linz
Universität Graz, 8010 Graz
MCI Management Center Innsbruck, 6020 Innsbruck
Montanuniversität Leoben, 8700 Leoben
TU Graz, Rechbauerstraße 12, 8010 Graz
TU Wien, Karlsplatz 13/E006, 1040 Wien
Universität für Bodenkultur Wien (BOKU), 1180 Wien
Universität Innsbruck, 6020 Innsbruck

High schools and training schools

Agrarbildungszentrum Hagenberg, 4232 Hagenberg im Mühlkreis
Bäuerliches Schul- und Bildungszentrum für Vorarlberg, 6845 Hohenems
Fachschule für biologische Land- und Forstwirtschaft, 4160 Aigen-Schlägl
Fachschule für Land- und Forstwirtschaft, 8361 Hatzendorf
Fachschule für Land- und Forstwirtschaft Kobenz, 8723 Knittelfeld
Forstfachschule Traunkirchen, 4801 Traunkirchen
Forstliche Ausbildungsstätte Ossiach, 9570 Ossiach
Forstliche Ausbildungsstätte Pichl, 8662 St. Barbara im Mürztal
Forstliche Ausbildungsstätte Traunkirchen, 4801 Traunkirchen
HBLFA Raumberg-Gumpenstein, 8952 Irdning
HBLFA Francisco Josephinum, 3250 Wieselburg
Hochschule für Agrar- und Umweltpädagogik, 1130 Wien
Höhere Bundeslehranstalt für Forstwirtschaft Bruck/Mur, 8600 Bruck/Mur
Höhere Lehranstalt für Umwelt und Wirtschaft, 3683 Yspertal
Land- und forstwirtschaftliche Fachschule Grabnerhof, 8911 Admont
Land- und forstwirtschaftliche Fachschule Grottenhof, 8052 Graz
Land- und forstwirtschaftliche Fachschule Hafendorf, 8605 Kapfenberg
Land- und forstwirtschaftliche Fachschule Kirchberg am Walde, 8232 Grafendorf
Land- und forstwirtschaftliche Fachschule Stainz/Erzherzog Johann Schule, 8510 Stainz
Landwirtschaftliche Berufs- und Fachschule Otterbach, 4782 St. Florian
Landwirtschaftliche Berufs- und Fachschule Waizenkirchen, 4730 Waizenkirchen
Landwirtschaftliche Fachschule Edelhof, 3910 Zwettl
Landwirtschaftliche Fachschule Tamsweg, 5580 Tamsweg
Landwirtschaftliche Landeslehranstalt Rotholz, 6200 Rotholz
Landwirtschaftsschule Schlierbach, 4553 Schlierbach