



Job Creation Benefits of Biomass & Bioheat:

How Upper Austria became a leading bioheat market

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CANADA

36.2 million

9,984,670 km²

49 %

63 %

Population

Surface area

Forested area

Electricity production from hydro

AUSTRIA

8.7 million

83,879 km²

47 %

68 %



The Province of Upper Austria Oberösterreich

Capital:

Linz

Population:

1.38 million (similar to Manitoba)

Area:

12,000 km² (twice Prince Edward Island)

Economy:

25% of the Austrian industrial exports,
important energy-intensive
industry

Upper Austria
Linz



The Energy Agency of the Province of Upper Austria

OÖ Energiesparverband

**promotes
energy
efficiency and
renewable
energy**

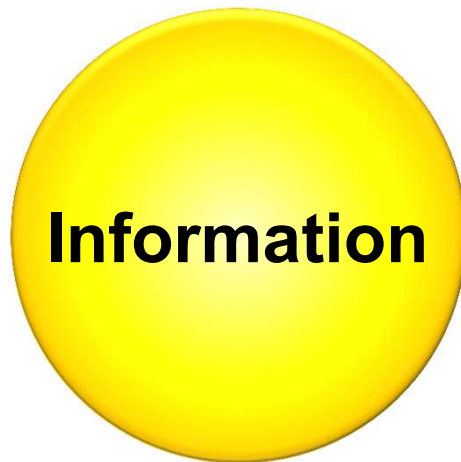
**provides
services to
households,
businesses &
municipalities**

**develops &
implements
policies &
manages
programmes**



The Oekoenergie-Cluster (OEC)

**The network of renewable energy & energy efficiency
companies in Upper Austria**
160 partner companies





solar + storage



biomass



**small hydro &
wind**



**heat pumps/
geothermal**



**energy manage-
ment/building
echnologies**



**architects/
construction
businesses**



**building
materials**



**energy consul-
tants/building
certificates**



**training &
research**



lighting



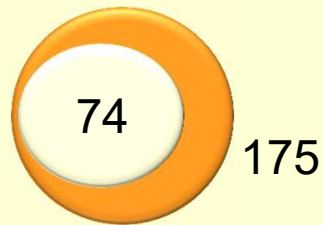
**contractors /
plant operators**



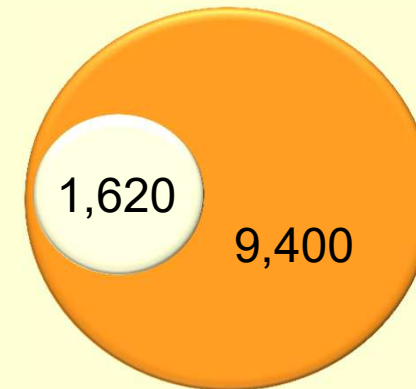
**suppliers/
wholesalers/other**

The growth of the OEC companies 2000 – 2015

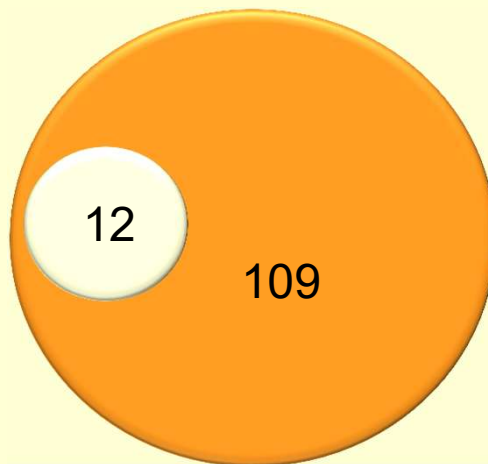
Number of OEC partners
doubled (x 2)



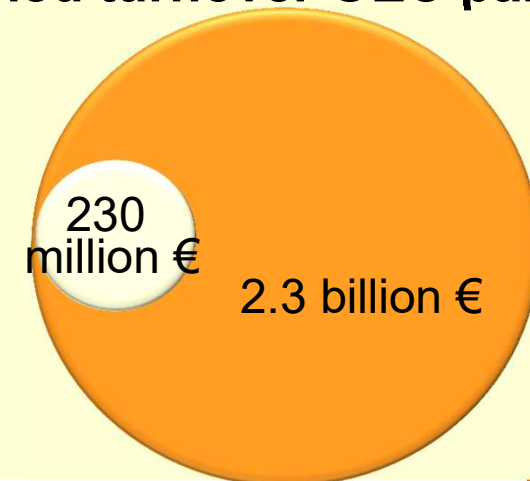
Combined total staff
x 6



Export countries
x 9



Combined turnover OEC partners
x 10



Biomass boiler + equipment manufacturers in Upper Austria (partners of the OEC)



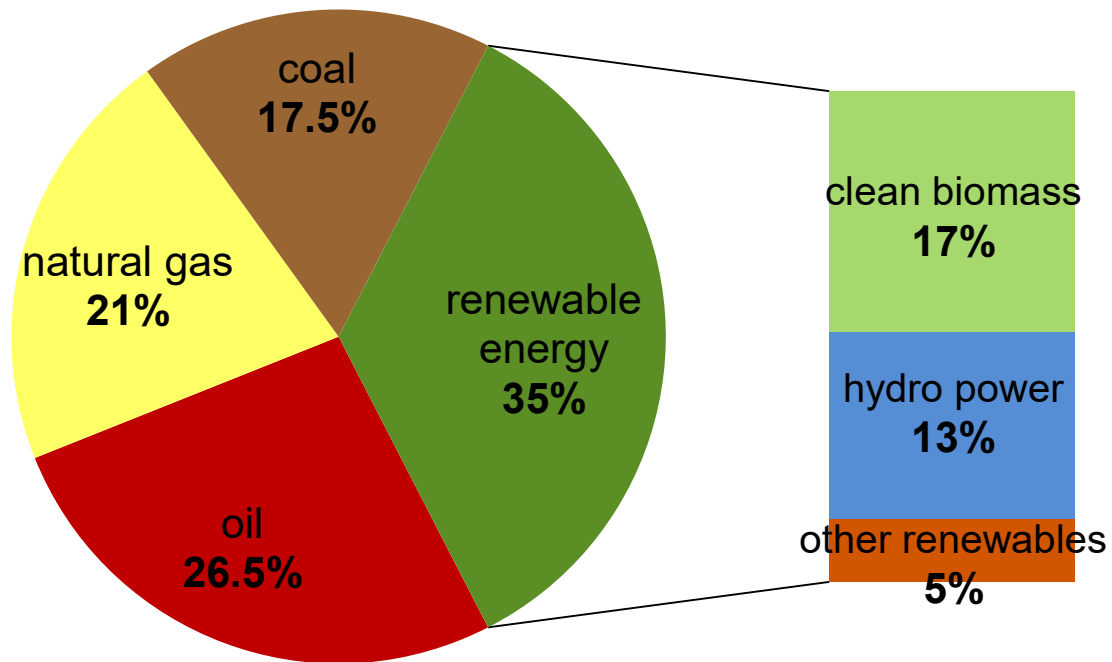
**25 % of all biomass boilers installed in the EU are
manufactured by Upper Austrian companies**



More info: www.oec-en.at



Energy production in Upper Austria

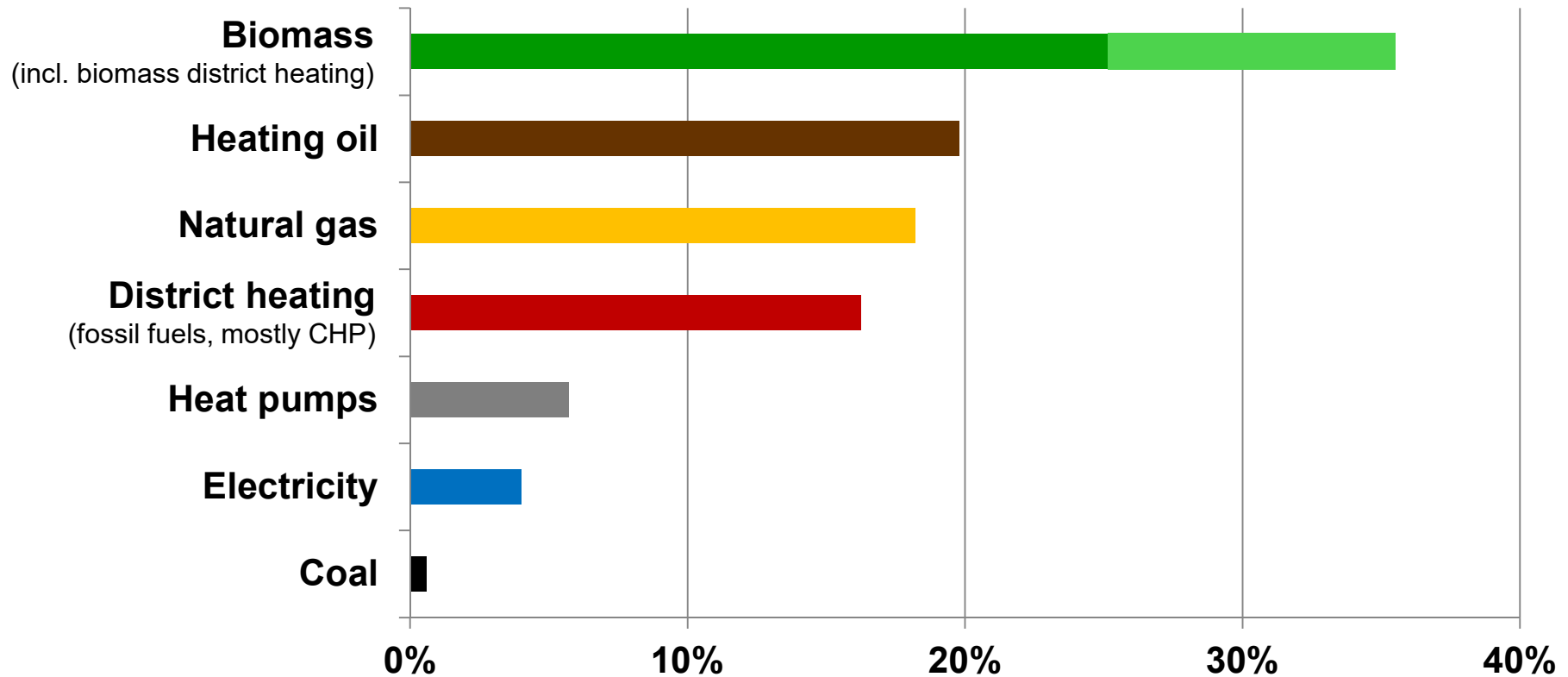


Gross domestic energy consumption by energy source
Upper Austria

Heating in Upper Austria

% of all dwellings

50,000 automatic biomass systems installed:
26,000 pellets, 24,000 wood chips,
330 biomass district heating plants



Modern and clean wood heating - WHY?

A good heating option

**Supports local
forestry**

New business opportunities & local jobs

**Energy
independence**

**Environmental and
climate goals**

Modern and clean wood heating - IF

**sustainable
forestry**

**effective
fuel
production
and
distribution**

**efficient and
low-
emission
heating
equipment**

Clean biomass heating - HOW?

Carrots, sticks and tambourines



Upper Austria's sustainable energy strategy – example of modern wood heating

"sticks"

Regulatory measures

- Emission & efficiency standards
- Fuel requirements
- Renewable heating mandate
- Minimum requirements heating & cooling

"carrots"

Financial measures

- Investment grant programs
- Renewable heating as a program requirement
- Contracting program
- Regional R & D program, pilot projects

"tambourines"

Information & training

- Energy advice
- Training programs
- Publications, campaigns & competitions
- Local energy action plans
- OEC - sustainable energy business network



Main policy instruments for wood heating heating

- Driving the market through standards
 - emission & efficiency requirements for appliances
 - efficiency standards for buildings
 - fuel standards

Efficiency and emission standards are regularly updated to drive innovation!

- Financial incentives - no "stop and go" of support programmes
- Advice, information and awareness campaigns
- Education & training of building professionals
- Supporting the industry through the OEC, the business network



Different fuels - more economic opportunities for different players



pellets

mostly home
heating















wood chips

mostly larger
buildings (public,
commercial),
district heating



firewood

Modern wood heating technologies

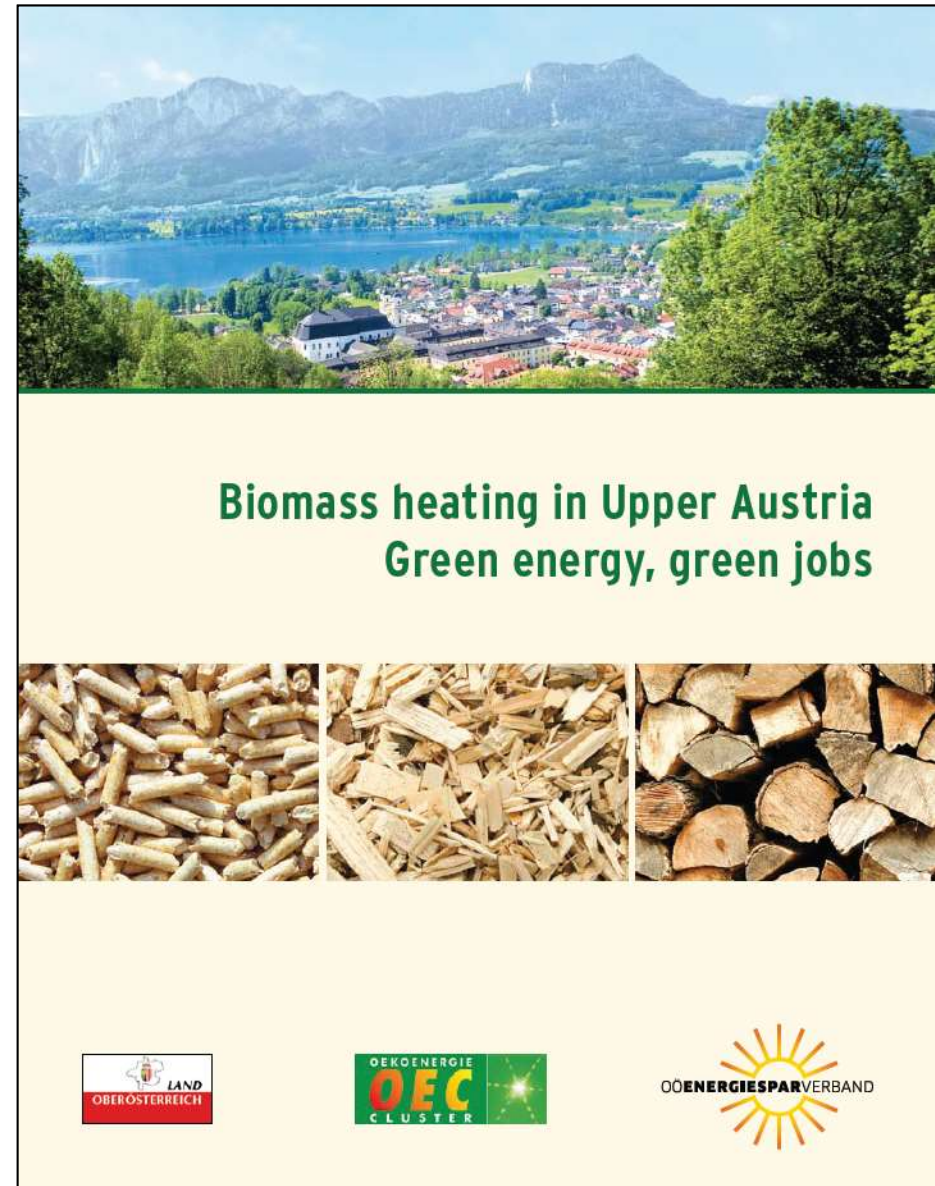
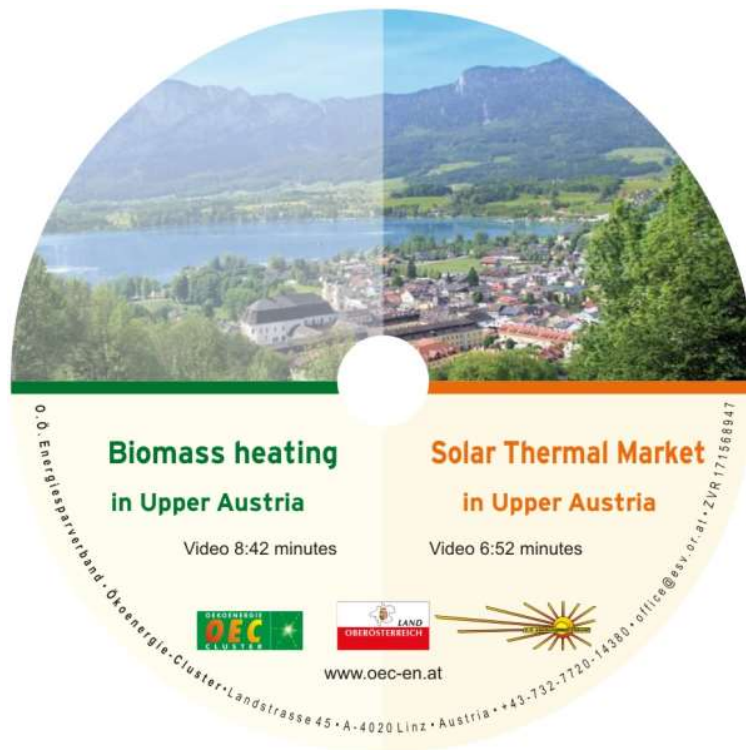
						
technology	modern stoves	automatic pellet heating	modern firewood boilers	automatic wood chip boilers	district heating	combined heat & power stations
fuel						
typical install. capacity	4-8 kW	5-15 kW	20-40 kW	50-150 kW	100 kW-3 MW	$>1 \text{ MW}_{\text{el}}$ $> 10 \text{ MW}_{\text{th}}$
users, customers	high efficiency homes, auxil. heating	single-family homes	farm buildings	public & commercial buildings	all buildings	all buildings
fuel supply	retailers (pellets), farmers (firewood)	bulk delivery by tank trucks	usually from own forest	often local farmers-forest owners	cooperative members & sawmills	farmers, sawmills, other channels

Economic impact of biomass heating in Upper Austria

Total employment in biomass heating	4,500 jobs
Annual revenue biomass boiler & stove industry in Upper Austria (production, sales, installation)	600 million US\$
Annual investments in new biomass heating systems	125 million US\$
Annual sales of biomass heating fuels	210 million US\$
Annual CO ₂ emissions avoided	1.7 million tons

Report & video
available at

www.oec-en.at



European Pellet Conference: March 1-2, 2017

- The world's largest annual pellet-related conference
- **Today's markets and tomorrow's technologies**
- **Young Researchers Conference: Biomass**
- **Site visits**
- **Tradeshow: 100+ biomass-related exhibitors**
- held in Wels/Austria

www.wsed.at



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