



## Driving the market through standards

### Fuel

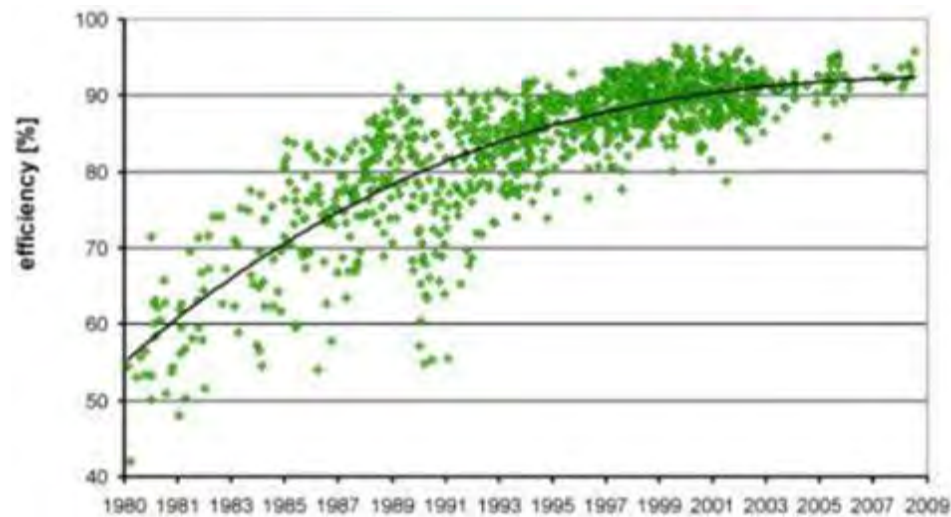
- early standardisation of pellet fuels: a important reason for Austria's pionieering role
- highly standardised fuel allows for high efficiency and low emission combustion technologies were developed based on and optimised for the standardised fuel
- warranty of the boilers only if standardised pellets are used
- European pellet fuel standard

### Equipment standards (Upper Austria)

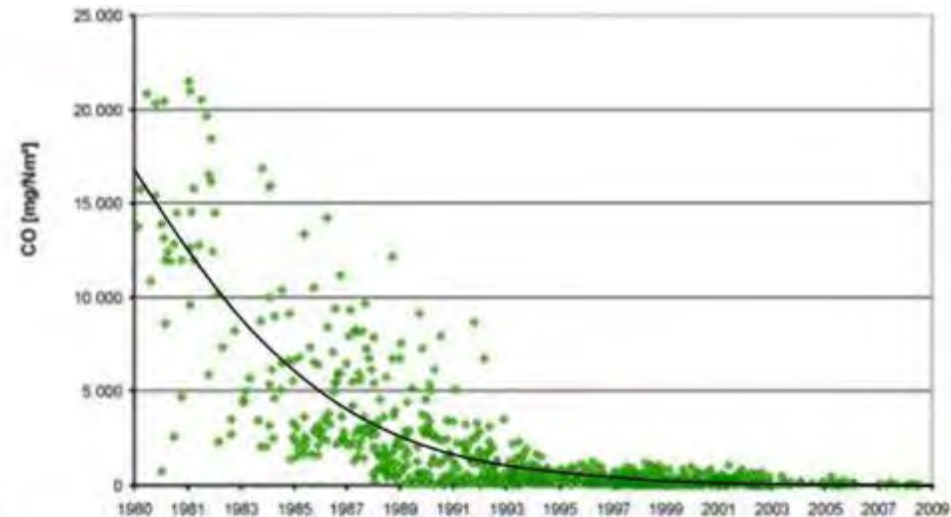
- efficiency and emission standards
- regularly up-dated to drive innovation

# Driving the market through standards: Fuels & Equipment

Example: Emissions & efficiency of biomass boilers: results from 1,000+ boiler tests



**Efficiency factor of  
tested biomass boilers**



**CO emissions of  
tested biomass boilers**

## Raising awareness & skills

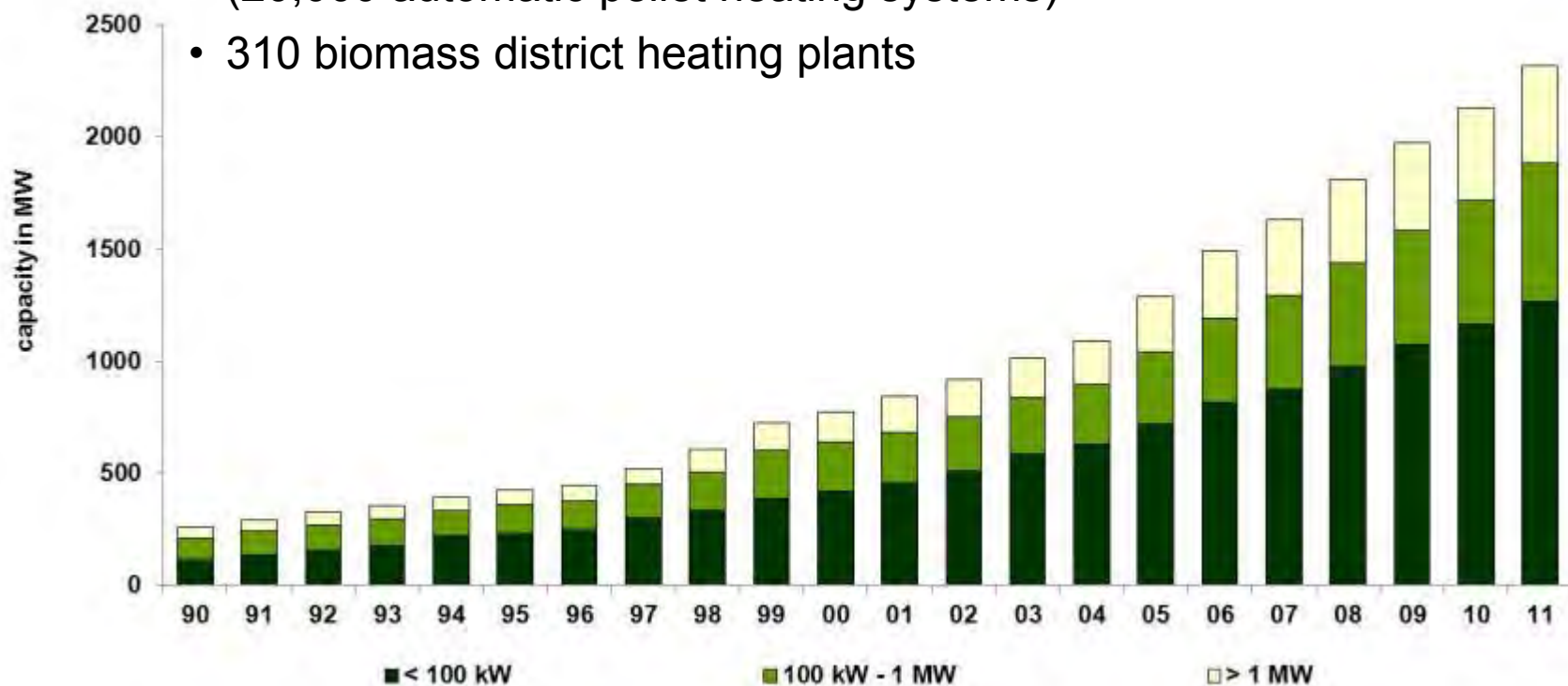
- **end consumers, e.g.:**
  - costs (higher investment costs, lower fuel costs, public support)
  - where to install (storage), how to operate
  - fuel supply (availability, price stability)
- **installers, building professionals, e.g.**
  - technical know-how to plan & install & service, storage solutions
- **stakeholders, media, authorities e.g.**
  - sustainability of biomass
  - costs





# Biomass heating in Upper Austria clean, efficient, fully automated

- 15 % of total energy consumption
- 41,000 biomass heating installations  
(20,000 automatic pellet heating systems)
- 310 biomass district heating plants





# Biomass heating technologies

|                                   |  |   |   |   |  |
|-----------------------------------|--|---|---|---|--|
|                                   |             |              |                |                |                 |
| <b>technology</b>                 | automatic pellet heating   | modern firewood boilers   | automatic wood chip boilers   | district heating  | combined heat & power stations   |
| <b>fuel</b>                       | pellets<br> | firewood<br> | wood chips<br> | wood chips<br> | whole trees<br> |
| <b>typical installed capacity</b> | 5-15 kW  | 20-40 kW  | 50-150 kW   | 100 kW-3 MW   | $> 1 \text{ MW}_{\text{el}}$<br>$> 10 \text{ MW}_{\text{th}}$                                      |
| <b>users, customers</b>           | single-family homes  | farm buildings  | public & commercial buildings   | all buildings   | all buildings  |
| <b>fuel supply</b>                | bulk delivery  | usually from own forest   | often by local farmers-forest owners  | cooperative members & form sawmills   | farmers & sawmills & other channels  |

# Product and service innovation

**home-scale  
pellet CHP  
plants**

Ökofen  
Pellematic  
Smart-e



**advanced  
wood-chip  
boilers**

ETA 340 Hack



integrated de-dusting,  
monitored combustion,  
improved fuel feed

**boilers for  
low energy/  
passive  
buildings**

Guntamatic  
THERM wall-  
mounted



2-7 kW

**industrial  
biomass  
heating  
systems**

Fröling  
Lambdamat



also: Guntamatic Pro  
(up to 1000 kW)

**innovative  
stoves**

Rika Evo Aqua



hydronic heat  
distribution, high-  
efficiency



# Product and service innovation

**modern log wood boilers**

Hargassner MV



logwood pieces up to 1 meter

**boiler integrated into the buffer storage**

Solarfocus octoplus



also Fröling P1,  
ÖkoFEN Pellematic  
Smart

**dual fuel boilers and stoves**

Fröling SP-Dual



also Rika Induo

**new solutions for pellet storage**

Ökofen textile tank Flexilo



**advanced transport systems**

Windhager "1 probe"



also Solarfocus probe switching device



# Product and service innovation

**user-friendly control systems (e.g. apps for smart phones)**

Gilles



all other boiler and stove manufacturers

**reduced electricity consumption**

Hargassner ECO HK 20 - 55 kW



75 % reduction in el. consumption (ignition, fuel feed)

**air collectors for wood chip drying**

CONA patented solar air collector



**heat contracting**

Aigner Energie Contracting

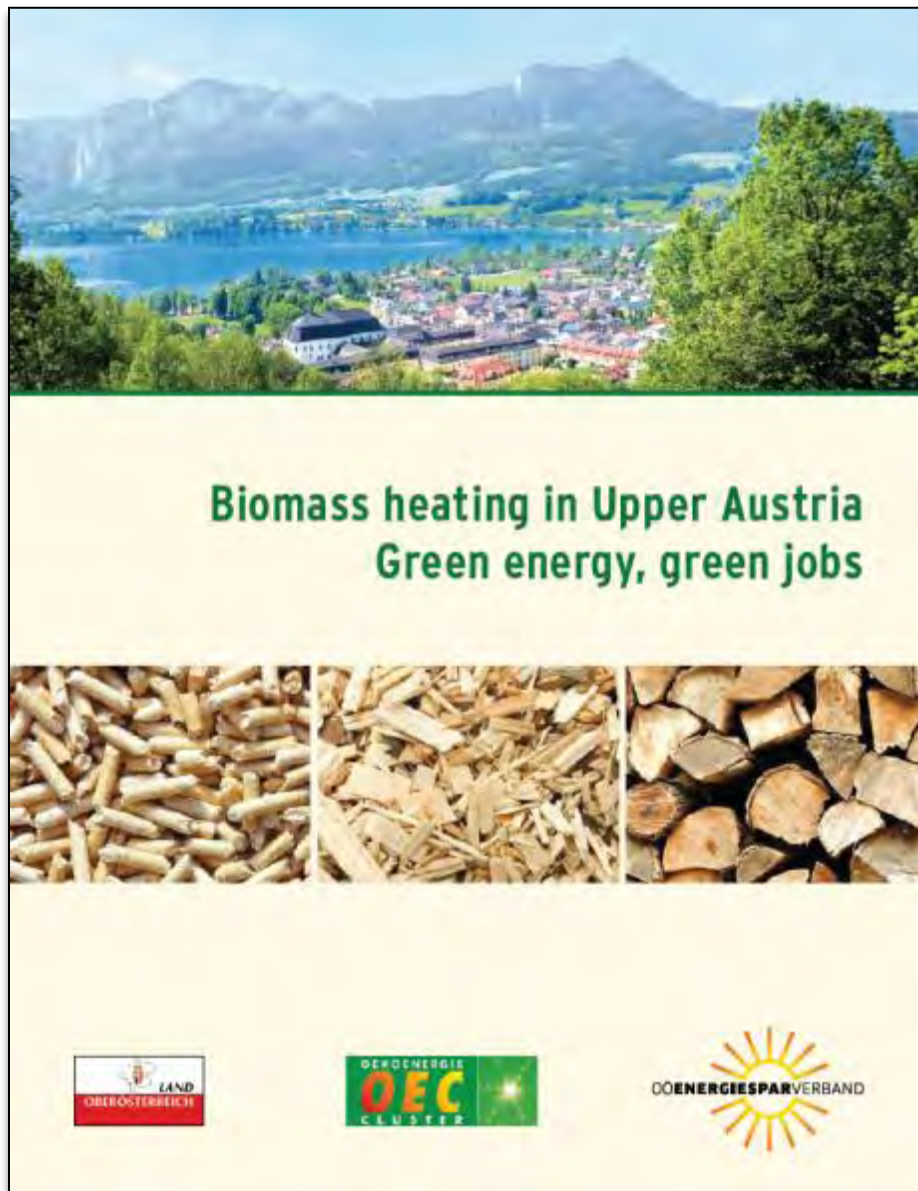


## How to get a biomass heating market started

- take a "package approach" (regulatory, financial & training/awareness programmes)
- communicate the benefits (not "just" climate protection)
- allow for a learning curve across the value chain (demonstration programmes & pellets campaigns & training)
- identify most promising markets (often new construction)
- understand progress & communicate success & take corrective action (market intelligence)
- take a longer term perspective

Report & video  
available at

[www.oec-en.at](http://www.oec-en.at)







## International Training Seminar on Biomass Heating

9 – 12 September 2013, Linz/Austria

- 3-day training seminar with technical training sessions & site-visits
- biomass heating technologies & market development (wood pellets & wood chips)
- in English
- [www.oec-en.at](http://www.oec-en.at)

International Training Seminar

## Biomass Heating

Market development  
and technologies

Linz/Austria,  
9 - 12 September 2013

Scholarships available

# European Pellet Conference: February 26 - 27, 2014

- The latest on policy, market & technology trends, innovation, sustainability
- **World Pellet Business & Technology Forum**
- **Pellet Networking Platform**
- **Pellet News Worldwide**
- **Biomass next - conference for young researchers**
- Site-visits
- Trade show: 100+ biomass-related exhibitors
- held in Wels/Austria

**Get involved:**

**Call for Papers, Projects & Speakers**

**Deadline: October 10, 2013**

**[www.wsed.at](http://www.wsed.at)**



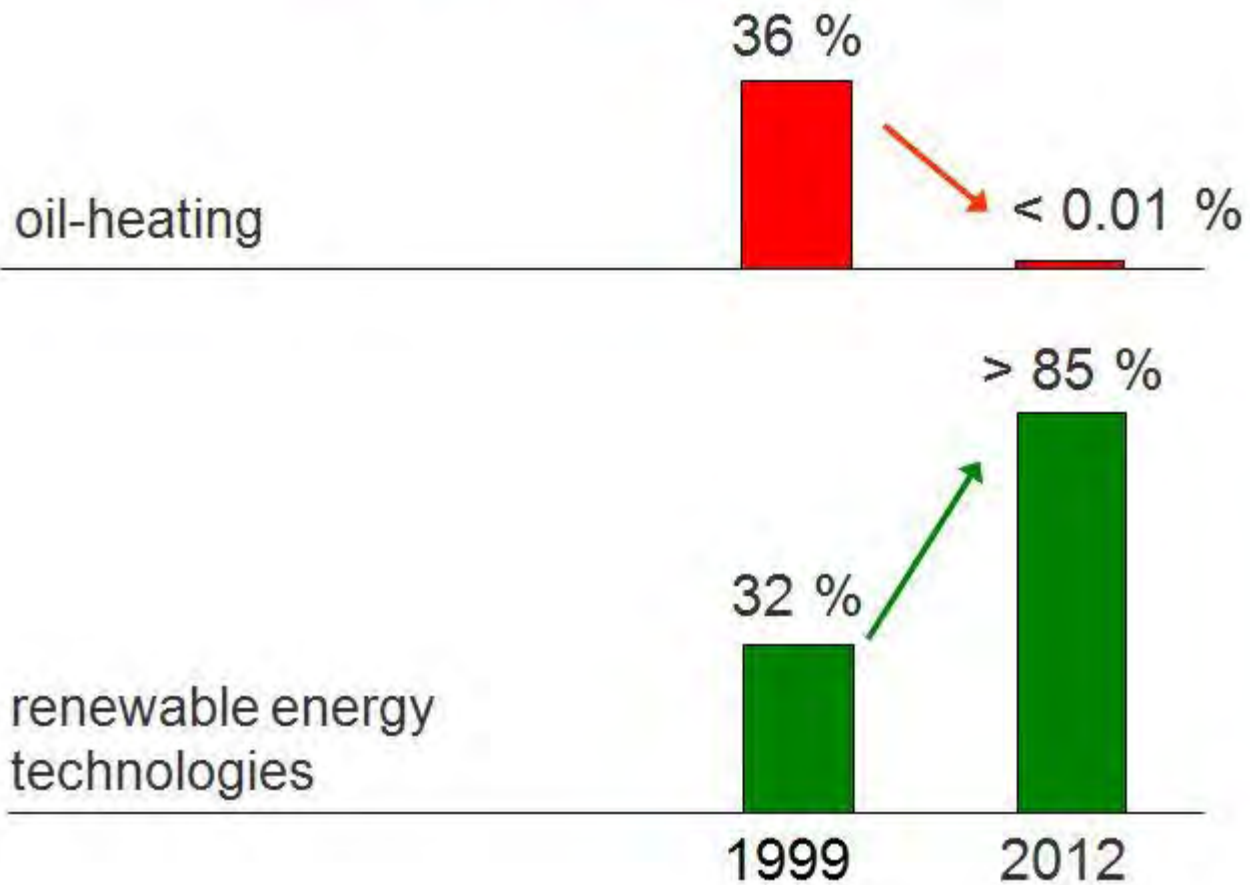


## Economic impact of biomass heating in Upper Austria

- Total employment in biomass heating 4,500 jobs
- Annual revenue of biomass boiler/ stove industry in Upper Austria (production, sales, installation): 750 million US\$
- Annual investments in new biomass heating systems: 150 million US\$
- Annual sales of biomass heating fuels: 130 million US\$



## The end of the oil-era?





**Thank you very much for your attention!**

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