

# The Energy Strategy of Upper Austria

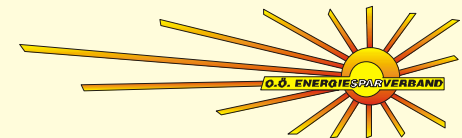
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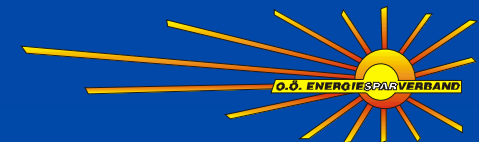
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# Agenda

Wednesday, 2 April 2008

- 9:30 Seminar at the office of O.Ö. Energiesparverband; Linz
- 12:00 Lunch with regional politicians at **Promenadenhof**; city centre of Linz
- 13:30 Departure from Promenadenhof to production plant of biomass boiler producer – **Ökofen**; Niederkappel
- 14:45 Arrival at **Ökofen** - Site visit
- 15:45 Continuation of the tour to passive home, Ottensheim
- 16:30 Arrival at **passive home** - Site visit
- 17:30 End of the Site visit tour and return journey to Linz
- 18:00 Arrival at Linz – Hotel Drei Mohren



# Agenda

Thursday, 3 April 2008

- 8:30 Departure from **Hotel Drei Mohren** to sustainable energy community Lengau; Friedburg
- 10:15 Arrival at **Lengau** - Site visit of the sustainable energy community
- 12:15 Departure for Lunch
- 12:30 Lunch at Landgasthof Haushofer; Straßwalchen
- 14:00 Continuation of the tour to the low energy company building of MIVA; Stadl Paura
- 15:00 Arrival at **MIVA** - Site visit
- 16:30 End of the Site visit tour and return journey to airport Linz
- 17:30 Arrival at airport Linz



# Oberösterreich - Upper Austria

Capital:	Linz
Population:	1.38 mio
Area:	12.000 km <sup>2</sup>
GNP:	30.400 mio €
Final energy cons.:	299 PJ; 30 % renewables
Unemployment:	4.4 %
economic activities:	industry, service sector, tourism, 25% of the Austrian exports





## Energy Action Plan of Upper Austria

### 1994 - 1999

- 30 % renewable energy  
(14 % hydro, 14 % biomass, 2 % solar)
- energy consumption in new housing reduced by 30 %
- 15,000 jobs

### 2000 - 2010

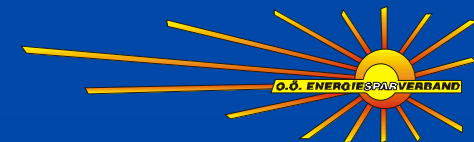
- double biomass & solar
- increase energy efficiency by 10 %

### Energy Efficiency Programme

- related to "Energy Service Directive"
- 1 % energy saving/year
- 1.5 % for the public sector

### Energy 2030

- reduction of heat demand by 39 %
- covering 100 % of space heating & electricity from renewables



# O.Ö. Energiesparverband



## Objectives

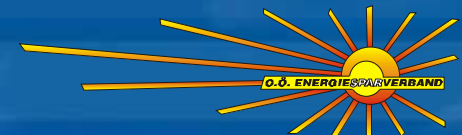
- Energy Efficiency
- Renewable Energy Sources
- New Technologies

## Organisation

- Regional Energy Agency
- set up in 1991
- Services for private households, public bodies & businesses
- Member of European networks (FEDARENE, EUFORES)

## Services

- Information and public awareness
- Energy advice
- Events & publications
- European projects
- Energy certification for buildings
- Training
- Third party financing
- Research and pilot projects
- OEC - green energy network



# Upper Austria's sustainable energy strategy

## 3 Pillars



**Legal  
measures**

"stick"



**Financial  
measures**

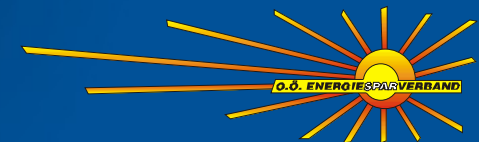
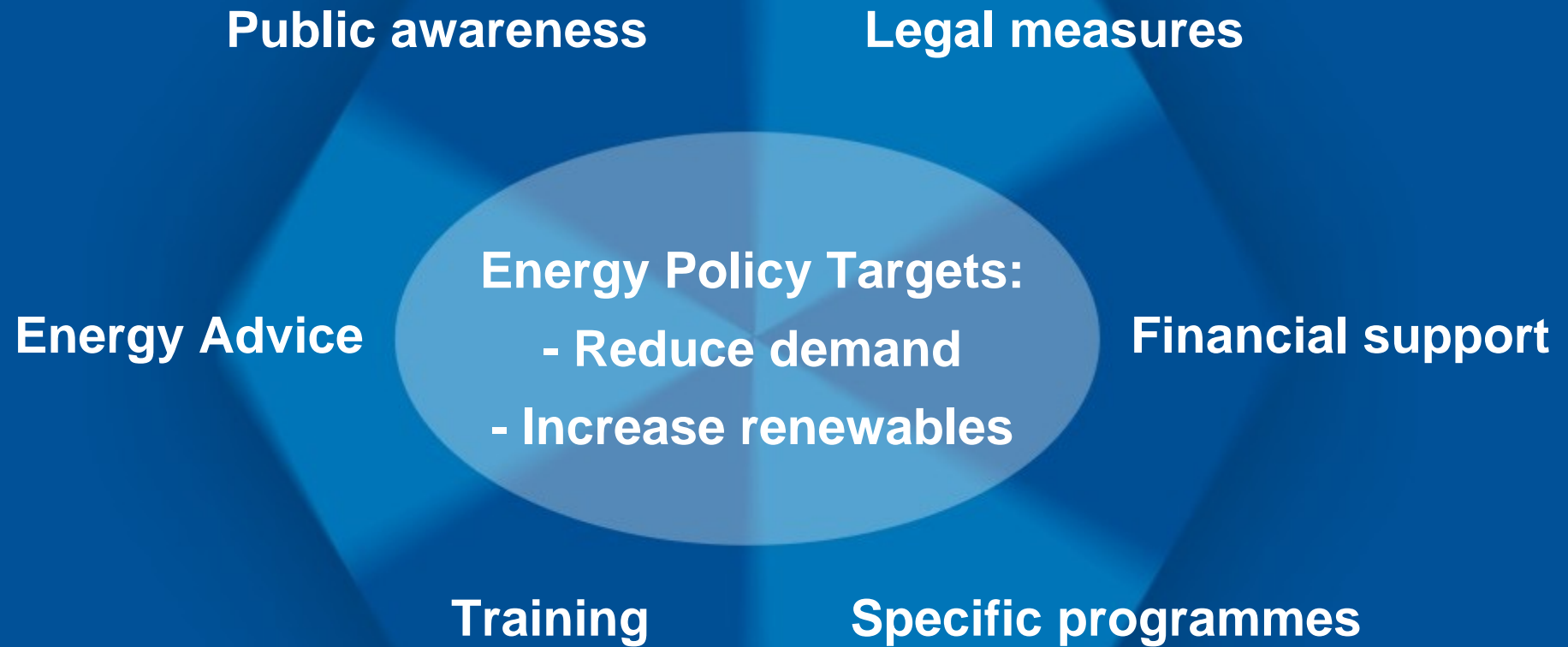
"carrot"



**Information  
activities**

"tambourine"

# Sustainable Energy Policies & Programmes in Upper Austria





# Biomass technologies used in Upper Austria

log wood boilers



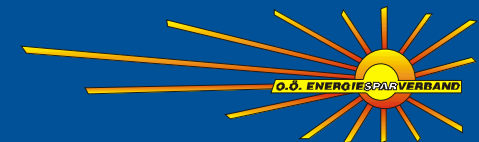
wood chip boilers



wood pellet boilers

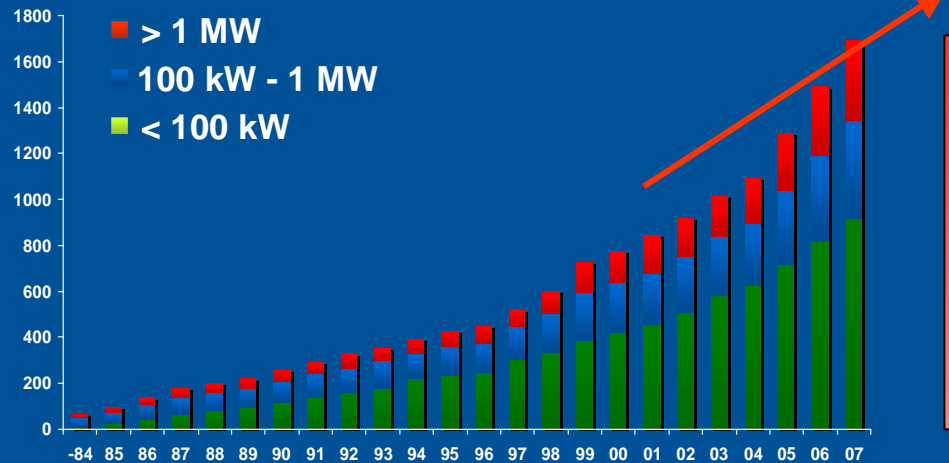


district heating/CHP



# Biomass heating in Upper Austria

capacity in MW



Upper Austria

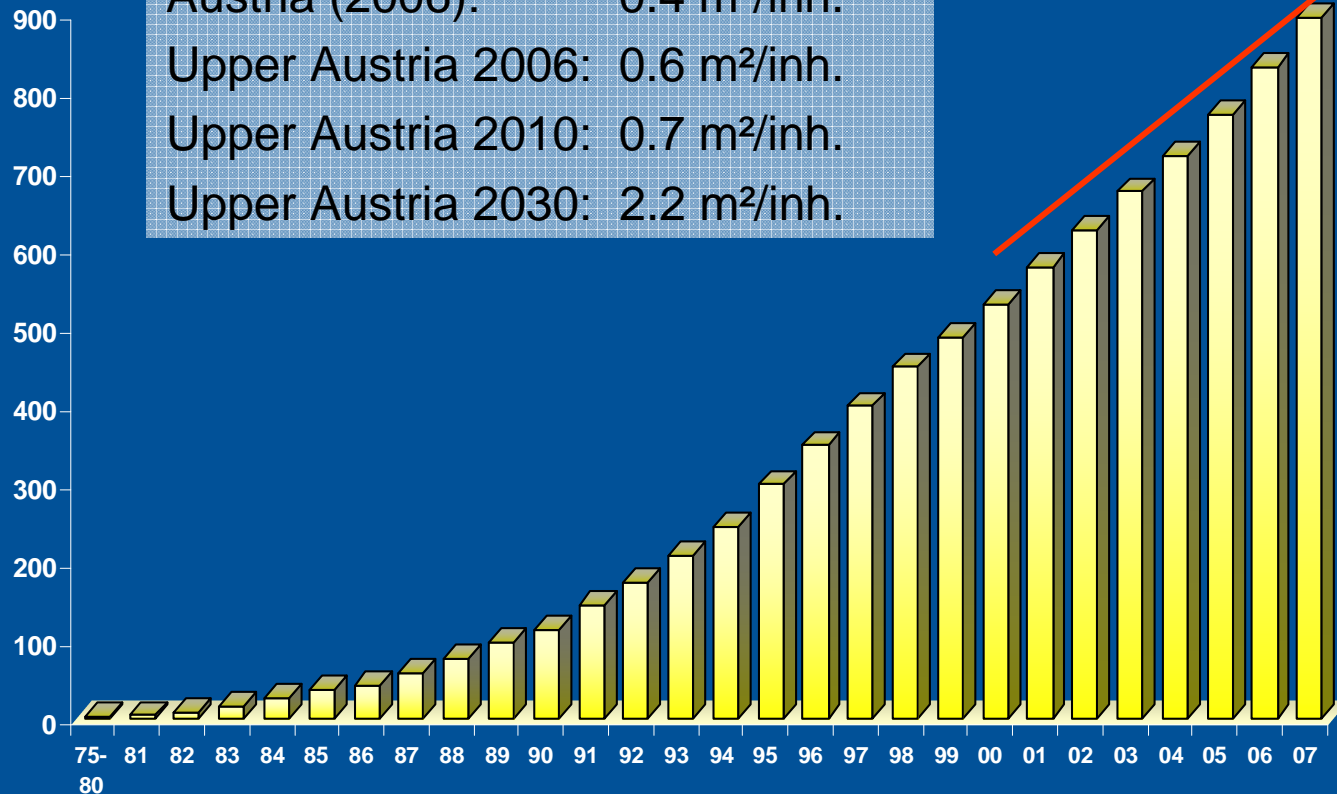
- 14 % of total energy consumption
- > 30,000 biomass heating installations
- 250 district heating plants
- 30 % of the municipalities mainly use biomass for heating

# Solar thermal in Upper Austria

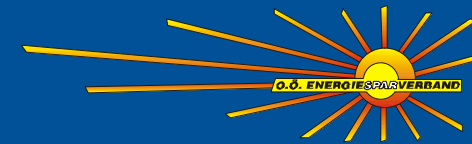
cumulated

EU27 (2006):	0.04 m <sup>2</sup> /inh.
Germany (2006):	0.1 m <sup>2</sup> /inh.
Austria (2006):	0.4 m <sup>2</sup> /inh.
Upper Austria 2006:	0.6 m <sup>2</sup> /inh.
Upper Austria 2010:	0.7 m <sup>2</sup> /inh.
Upper Austria 2030:	2.2 m <sup>2</sup> /inh.

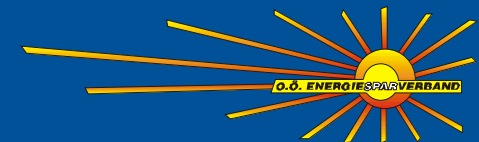
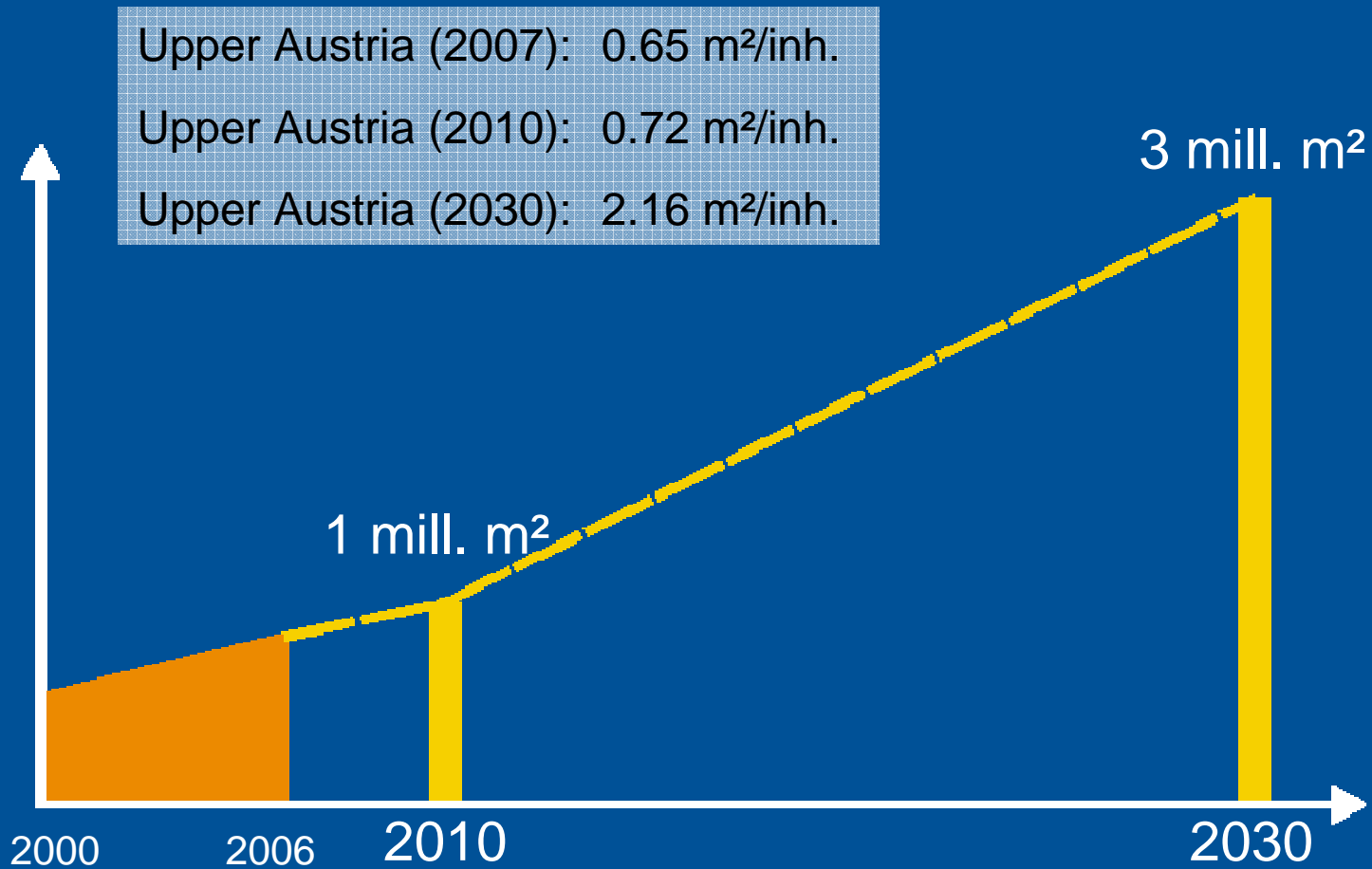
in 1.000 m<sup>2</sup>



**target:  
doubling  
till 2010**



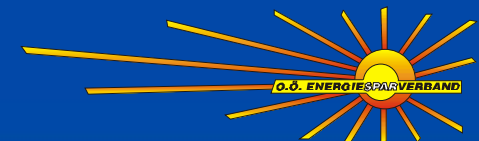
# Solar thermal in Upper Austria - planned



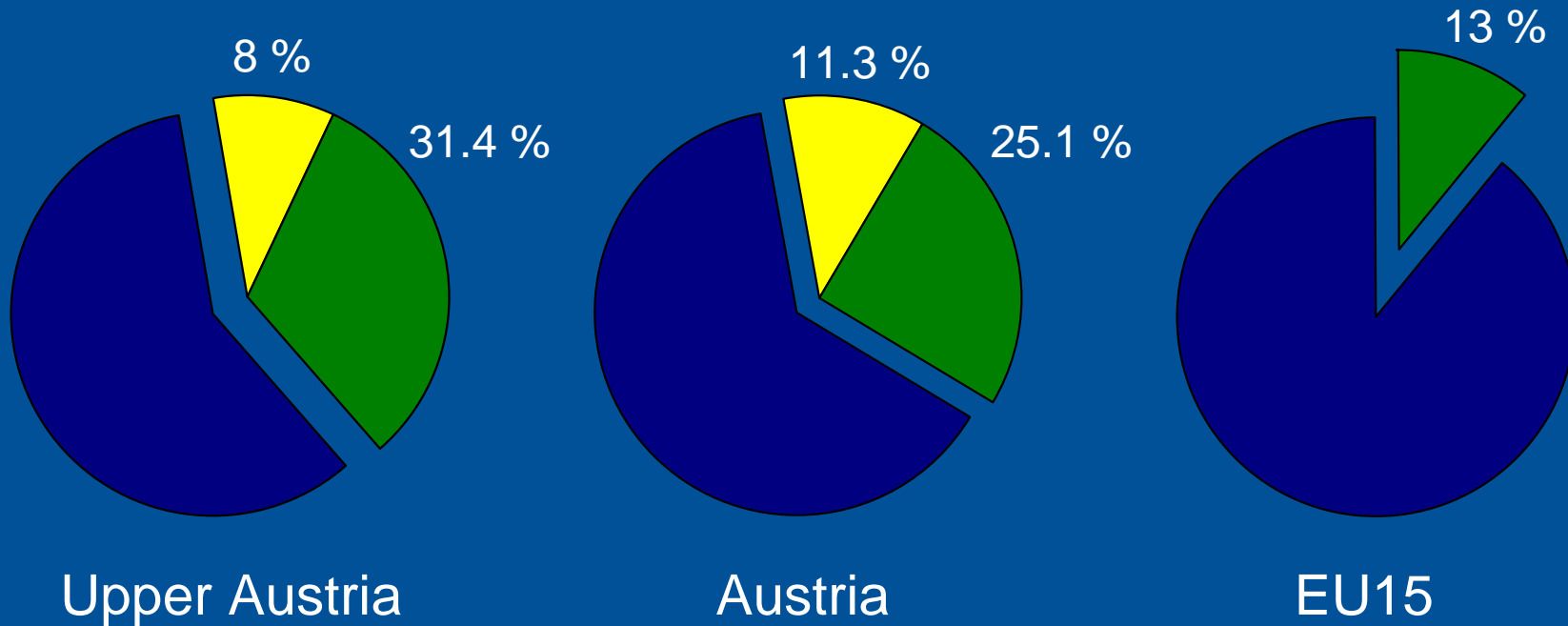


## "Solar obligation" in Upper Austria

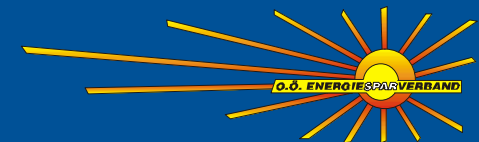
- for all new residential buildings (participating in the regional building programme; covering > 90 %)
- at least 4 m<sup>2</sup> (one family homes)
- financial support increased if solar keymark



# Renewable Heating - Market Shares



- district heating
- RES heating without district heating
- other



## **Creating demand: Promoting solar & biomass in Upper Austria to different user groups**

### **One family home**

- Energy advice
- Financial support
- Publications & events

### **Multi family homes**

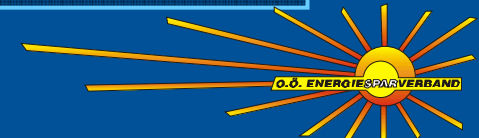
- Financial support
- Demonstration buildings
- Surveys & Round-tables

### **Public buildings**

- Legal obligations
- Pre-requisite for funding
- Energy advice
- Architects competitions
- Training & events

### **Company buildings**

- Energy advice
- Financial support
- Campaigns
- Sector concepts
- Events & publications



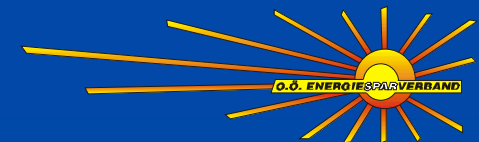


## Ökoenergie-Cluster Upper Austria

- presently 145 partners, 35 Czech partners
- managed by O.Ö. Energiesparverband on behalf of the regional government of Upper Austria
- since 2000
- [www.oec.at](http://www.oec.at) - also in English
- **Turnover:** 1,570 million Euro
- **Employees:** ~ 4,000
- **Export share:** > 50 %

### Network objectives:

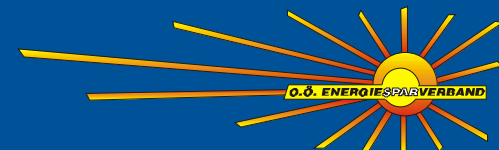
- support business development of the partners
- foster increased co-operation among partners
- "Regional Dialogue Platform"





## “Clustering” as a regional policy

- Since 1998, Upper Austria follows the cluster-oriented economic and technology policy fostering innovation and competitiveness of the Upper Austrian businesses
- 8 sector specific networks (1,600 companies):
  - Automotive
  - Drive Technology
  - Plastics
  - Furniture/wood construction
  - Health technology
  - Mechatronics
  - Food
  - Green energy



# Ökoenergie-Cluster Upper Austria

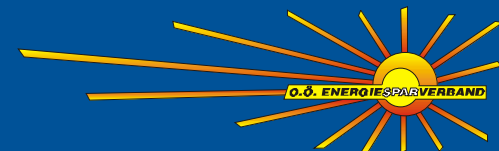
**149 companies**

from the following sectors:

- Solar energy (thermal/PV)
- Biomass / Biogas
- Wind energy
- Heat pumps / Geothermal
- Small hydro power
- Energy efficiency technology
- Low energy / passive buildings
- Third party financing



071327en  
ESV-Design



## Structure of the OEC partners

- 39 % producers of RE technologies and products
- 44 % planning, distribution, consulting companies
- 17 % R&D, training, others

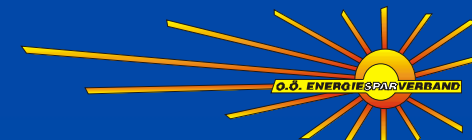
- 46 % biomass
- 27 % solar thermal
- 22 % PV
- 15 % heat pumps
- 9 % small hydro power
- 7 % wind power

### Company size:

- < 10 staff members: 50 %
- 11 – 20 staff members: 14 %
- 21 – 50 staff members: 11 %
- 51 – 250 staff members: 16 %
- > 250 staff members: 9 %

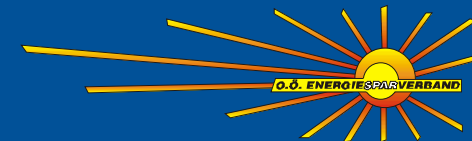


## Examples of OEC companies – biomass & solar thermal



# "Booming Business" 2006/2007

- Investment in new buildings & production: 100 mio €
- New staff: > 500



## Example: Building strategies in Upper Austria

Energy performance indicator

Energy certification / labelling

Training & education

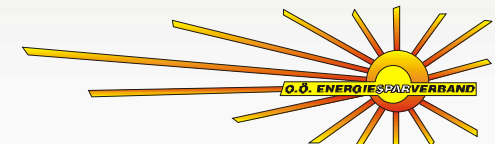
Subsidy programmes

Advice & information

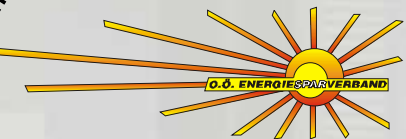
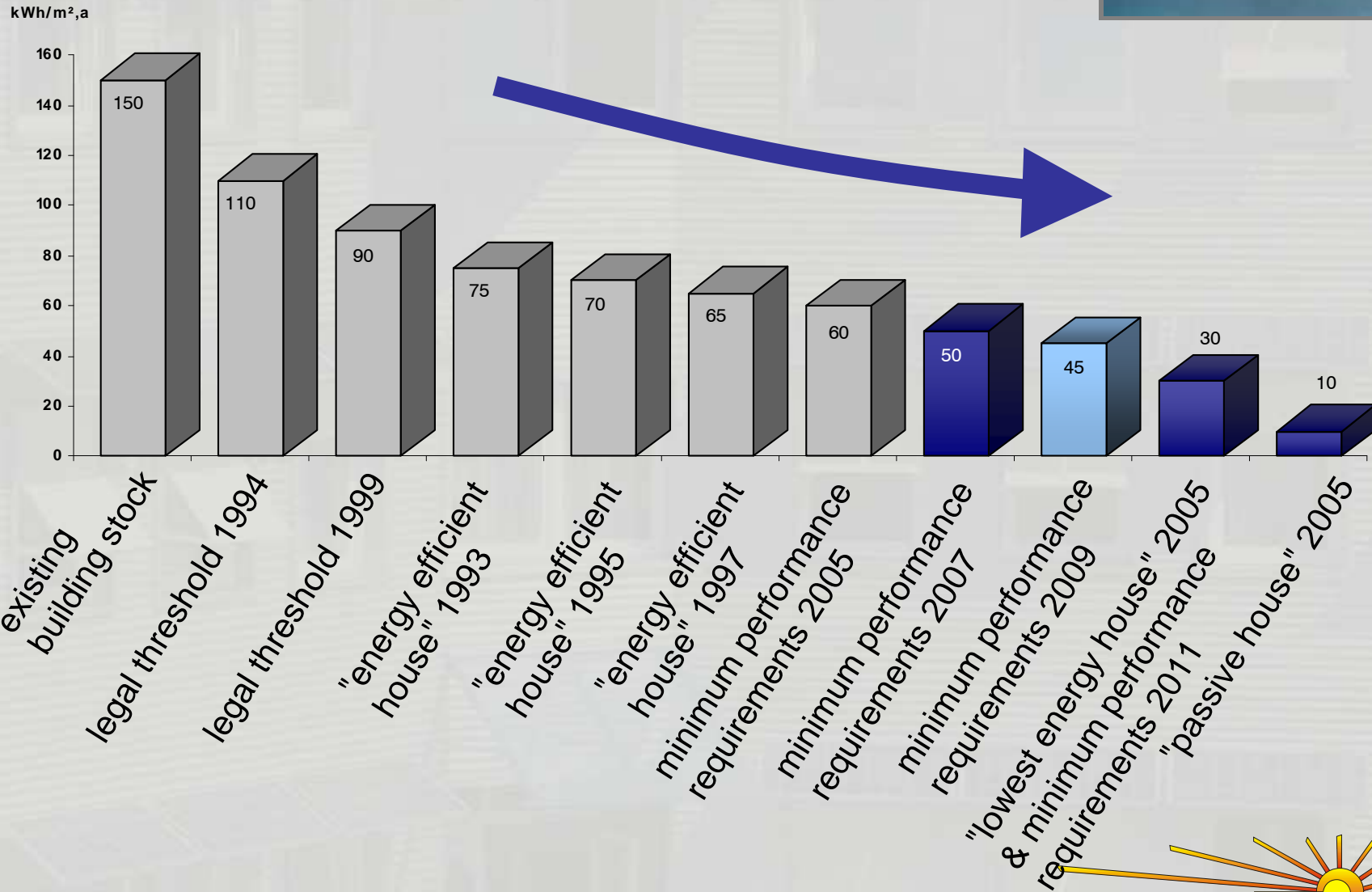
Legal thresholds



In Austria, the regions are responsible for the implementation of the Buildings Directive.



# Building Trends in Upper Austria



## Results sustainable housing programme 1993-2007

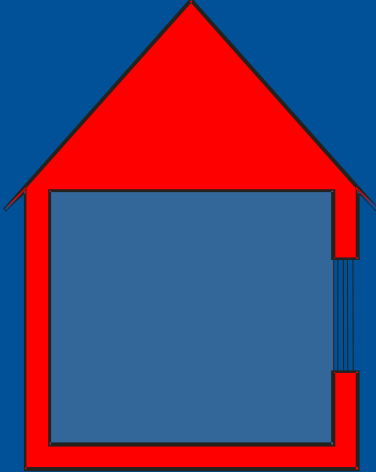
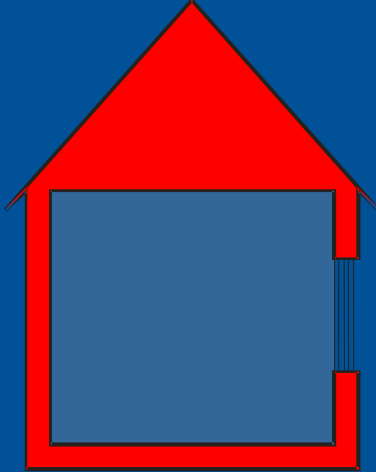
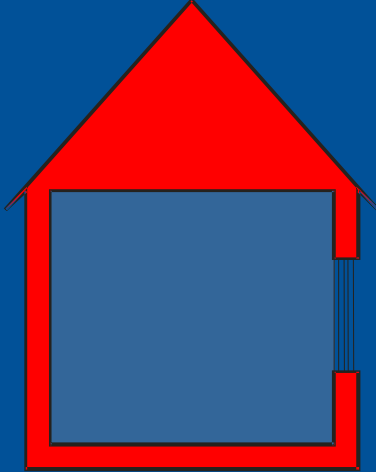
- managed by O.Ö. Energiesparverband
- 65,000 homes (new & renovation):
  - energy performance indicator
  - energy certificate
  - energy advice session
- 95 % of all new homes in the region
- 500 mio. kWh energy savings/a (100 mio. kg CO<sub>2</sub>)

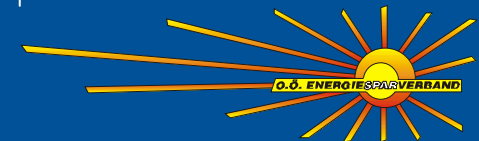


	2003	2004	2006	2007
energy efficient homes	67%	45%	15%	
low energy homes	31%	52%	78%	80%
lowest energy/passive homes	2%	3%	7%	20%
average indicator (kWh/m <sup>2</sup> ,a)	56	53	48	44



## U-Values for important home types

	passive home	low energy home	energy efficient home
			
windows	0.8	1.1	1.3
outside walls	0.12	0.2	0.35
upper ceiling	0.1 (40 cm)	0.15 (30 cm)	0.2 (24 cm)
basement	0.15	0.25	0.3





## Creating a market for sustainable buildings – the actors

### public sector

- legislators & administrators
- leading by example
- energy conservation

### businesses

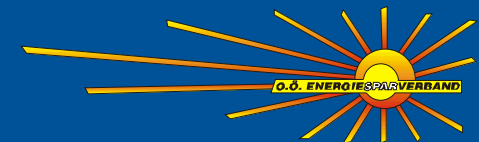
- energy consumers

### citizens

- energy consumers

"public opinion"

**change how they think**  
**change how they behave**  
**change how they invest**





## **Creating an Energy Efficiency Market**

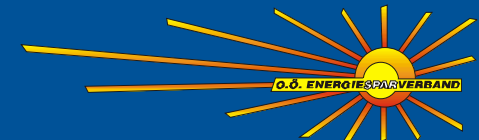
### **The Upper Austrian Public Buildings Programme**

#### **"Political & legal measures"**

- 1.5 % target
- minimum performance requirements
- performance requirements in tender documents
- priority for RES for heating & hot water
- mandatory energy accounting

#### **"Soft measures"**

- energy advice
- support to tenders
- events, competitions, publications, training
- financial support/TPF
- local energy strategies (EGEM)
- exemplary role of regional buildings



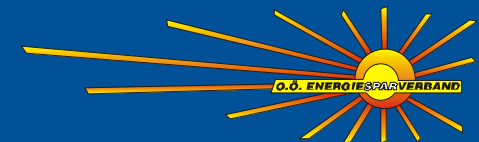
## Benchmarking and monitoring of regional buildings

Building types	1994	2002	2004	2005
vocational schools	117	90	90	85
district offices	117	95	88	80
administration buildings	105	104	98	93
agricultural schools	127	109	104	102
hospitals	218	160	147	140

Energy performance indicators for heating (kWh/m<sup>2</sup>,a)

- for all buildings owned by the regional administration
- energy consumption per m<sup>2</sup> (heating & hot water) decreased by 18.5 % since 1994
- electricity consumption stable despite “more IT”

Source: gbm, S. Hübler



## Different consumption trends

- **Scenario "Turning point"**

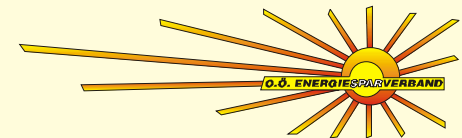
- Electricity minus 0.5 %/y
- Heating minus 2 %/y
- Transport minus 1 %/y

- **Scenario "Stable development"**

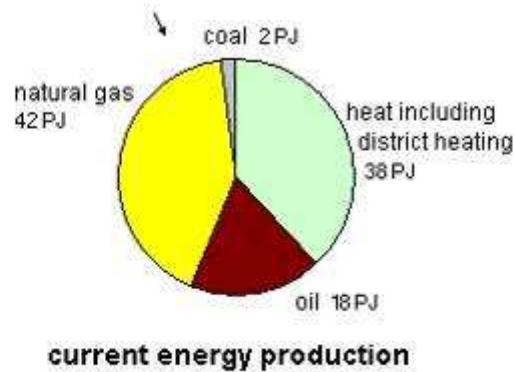
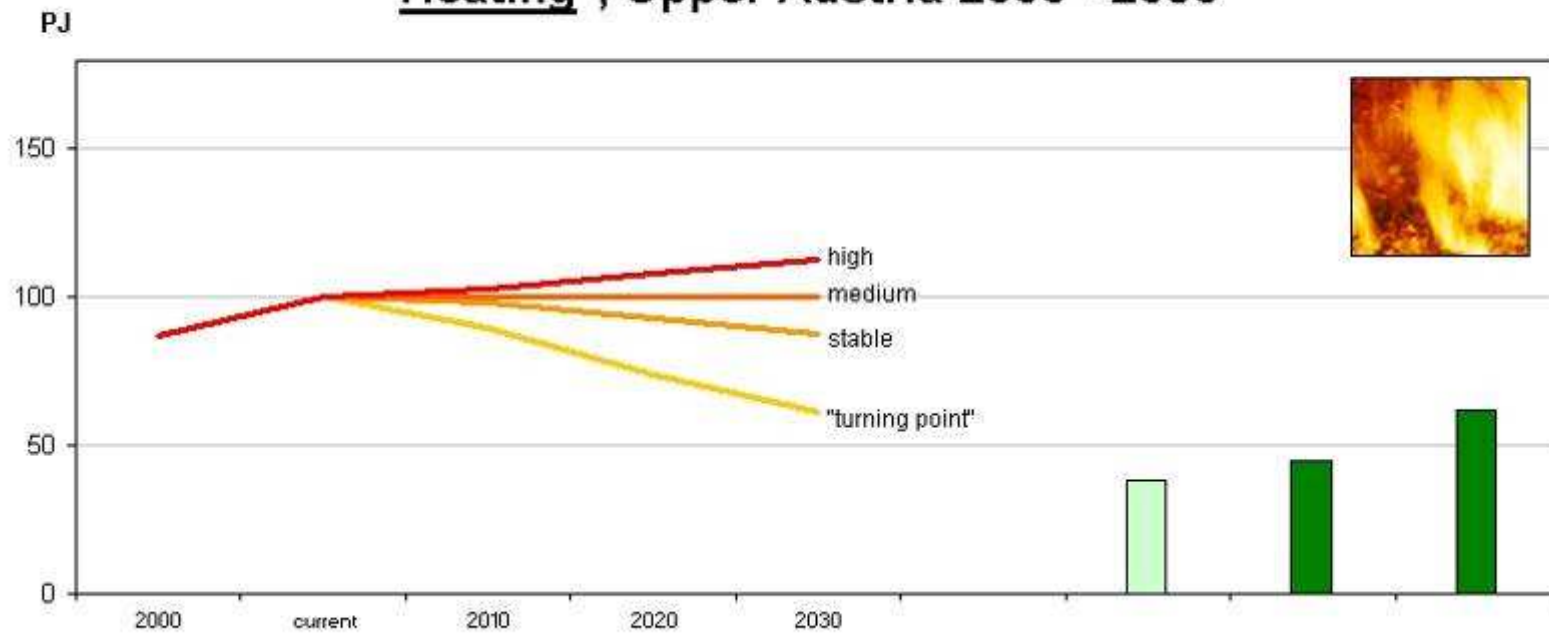
- **Scenario "Medium"**

- **Scenario "High"**

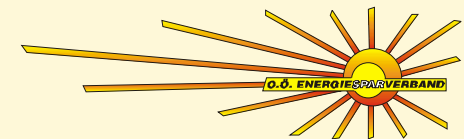
-> Decision of the regional parliament to aim at „turning point“ scenario



## Development of consumption, scenarios and potentials Heating , Upper Austria 2000 - 2030



Source: TU-Wien, LEB OÖ





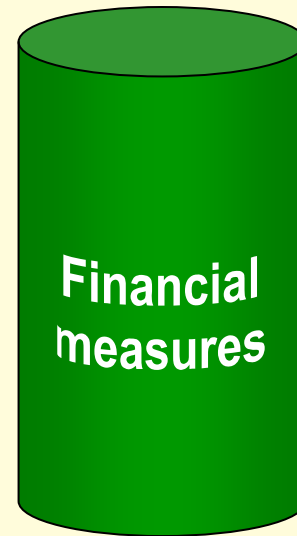
## Action Plan II

### New future measures

- Legal measures
- Financial measures
- Information activities



"stick"

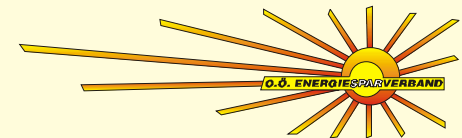


"carrot"

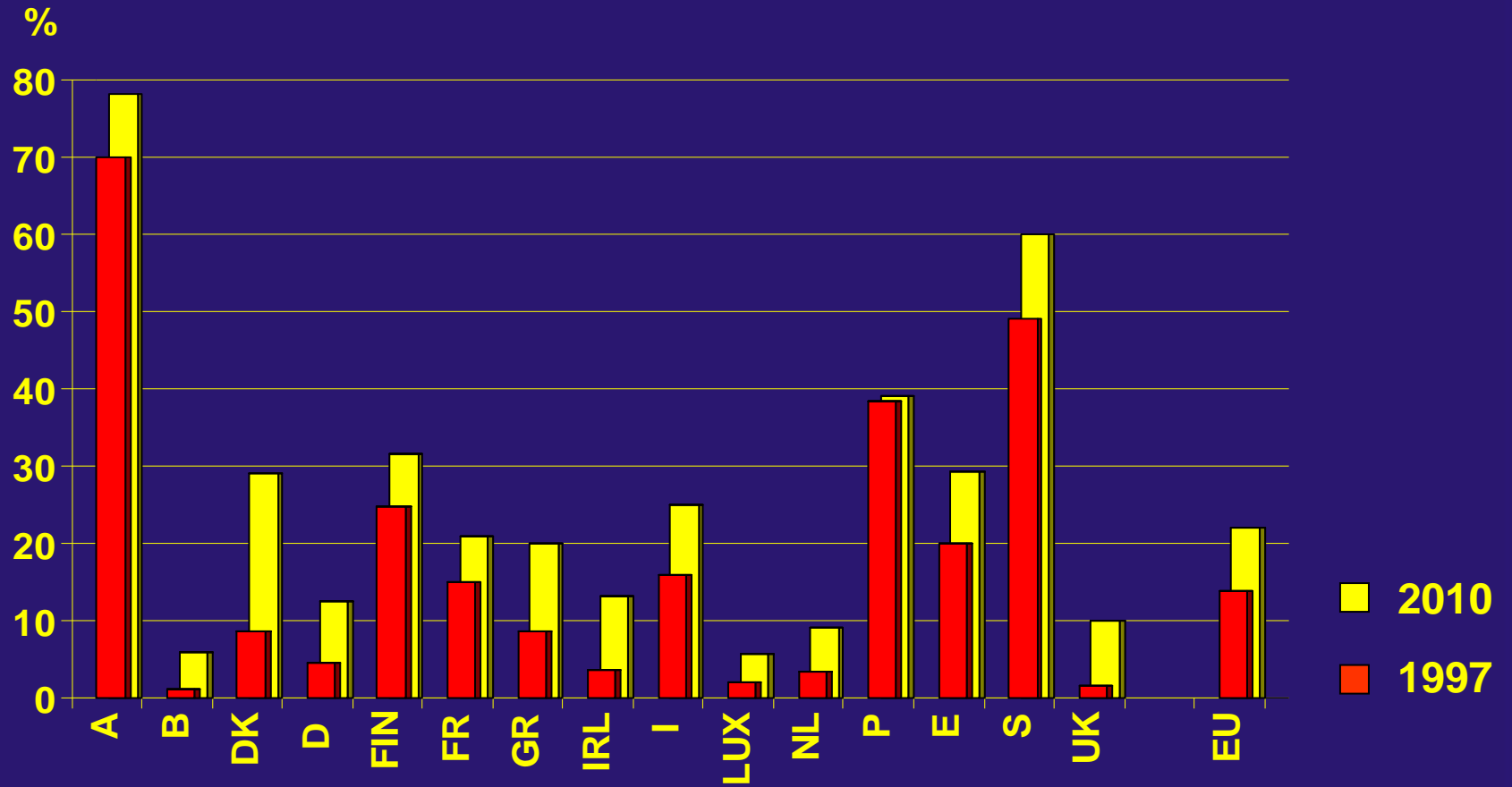


"tambourine"

Upper Austria's sustainable energy strategy  
3 Pillars

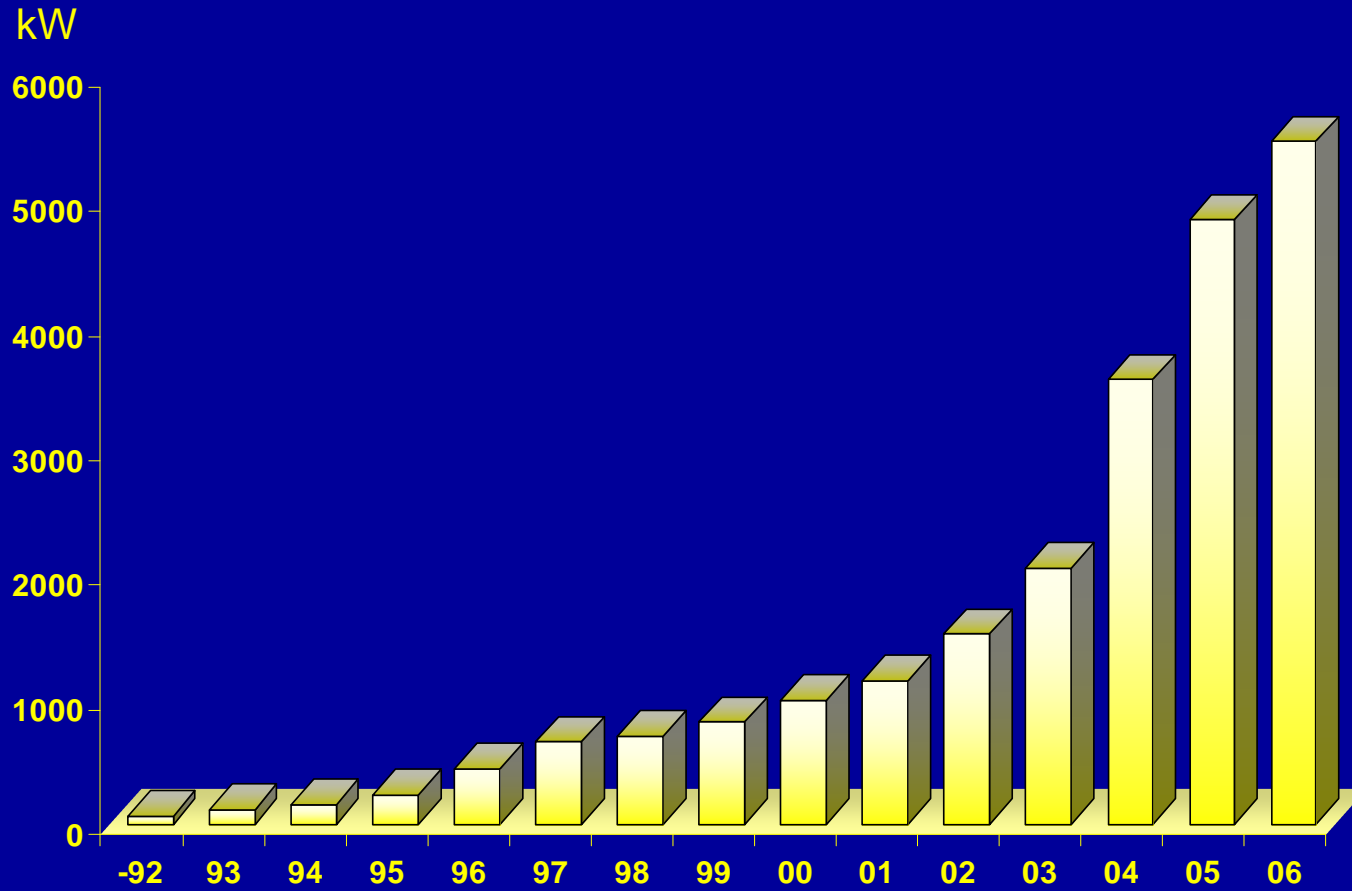


# European targets for RES-e



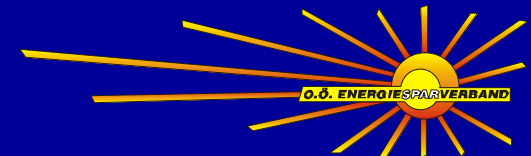


# PV in Upper Austria



grid-connected

cumulated





## Promotion of biomass & solar market development

goal:  
double modern biomass & solar thermal installations

### "create demand":

- Energy hotline
- Energy advice
- Publications
- Competitions
- Financial support
- Legal measures

### "meet demand":

- Oekoenergie-Cluster
- Training & education
- Research & demonstration
- Third Party Financing

## Examples: Innovative commercial buildings (1)

- **"Energiewerkstatt"**
  - low energy office building
  - 1,000 €/m<sup>2</sup> construction costs
  - 100 % energy supply from RES
- **Manufacturing hall "Obermayr"**
  - first manufacturing hall in passive building standard (3,500 m<sup>2</sup>)
  - timber construction
  - efficient lighting concept, daylight utilisation & simulation

