

Innovative Energy Technologies in Austria Development of Markets in 2013

presentation of results

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Ordered by the Federal Ministry for Transport, Innovation and Technology

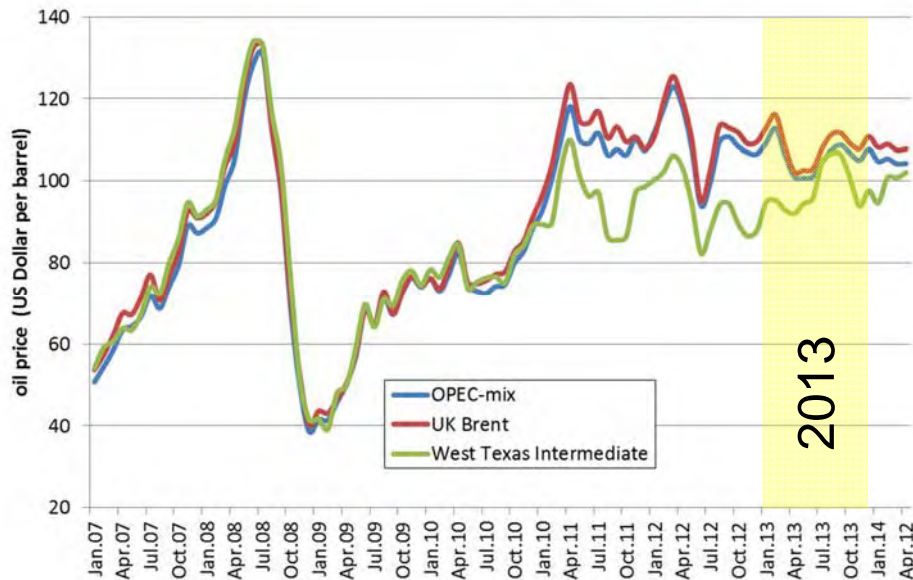
- goal of the study
- method and data
- side conditions 2013
- **solid biomass – fuels** ↗
- **solid biomass – boilers and stoves** ↘
- **photovoltaics** ↑
- **solar thermal collectors** ↘
- **heat pumps** →
- **wind power** →
- conclusions

- documentation of market development
- market analysis
- effects of market development
 - produced renewable energy
 - reduction of greenhouse gas emission
 - turnover and employment
 - innovations and trends
- target groups: energy policy makers, companies and R&D institutions

- **investigations** (producers, traders, installers, subsidy allocating institutions ,...)
questionnaires and qualitative interviews
- **calculations** (units in operation, produced energy, CO₂-reduction national economy effects)
- **documentation and dissemination** (report, conferences, papers, downloads)

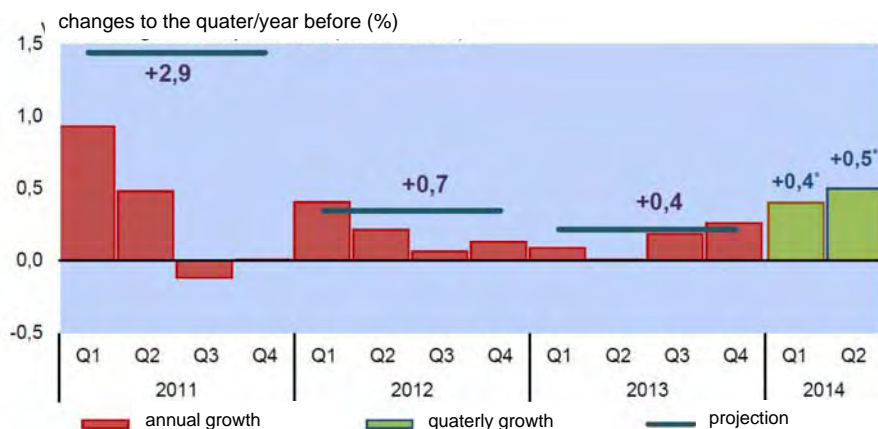
- **solid biomass – fuels**
literature, national energy statistics, ProPellets Austria (21 producers), biomass association, interviews with selected traders
- **solid biomass – boilers and stoves**
literature, NÖ LWK (61 companies), interviews (9 stove producers)
interviews of subsidy allocating institutions, KPC
- **photovoltaics**
questionnaires (63 producers, installers and R&D institutions),
subsidy allocating institutions, KPC, OeMAG
- **solar thermal collectors**
questionnaires (42 producers and traders), subsidy allocating institutions, KPC
- **heat pumps**
questionnaires (29 producers and traders), subsidy allocating institutions, KPC
- **wind power**
questionnaires (49 companies from supply and service sector plus 48
operating companies, OeMAG etc.)

Development of oil price



Source: Mineralölwirtschaftsverband, www.mwv.de

Economic activity / real GDP



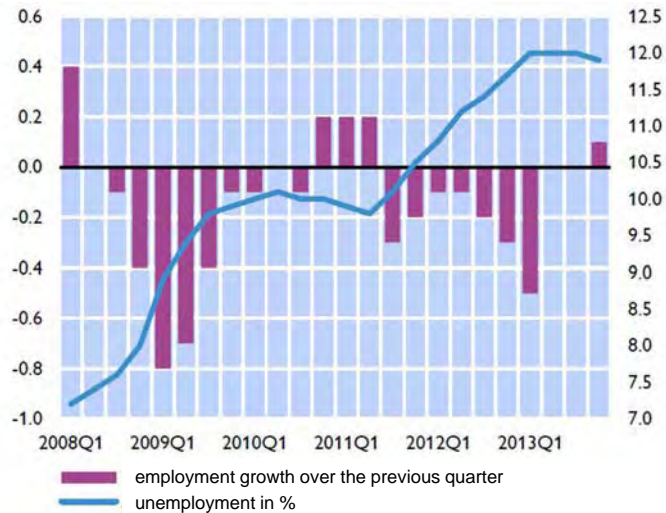
*) Prognosewerte

2013: weak economy including low construction rate of new buildings and renovation

Sources: Eurostat and Österreichische Nationalbank

Employment growth and unemployment in the euro area

Source: Eurostat



2013: historically high and constant unemployment

funding programme of Austrian oil industry

HEIZEN MIT ÖL
 Auf Zukunft eingestellt.

Mit der **geförderten modernen Ölheizung** effizient und sauber heizen – für unsere Umwelt und unser Klima.

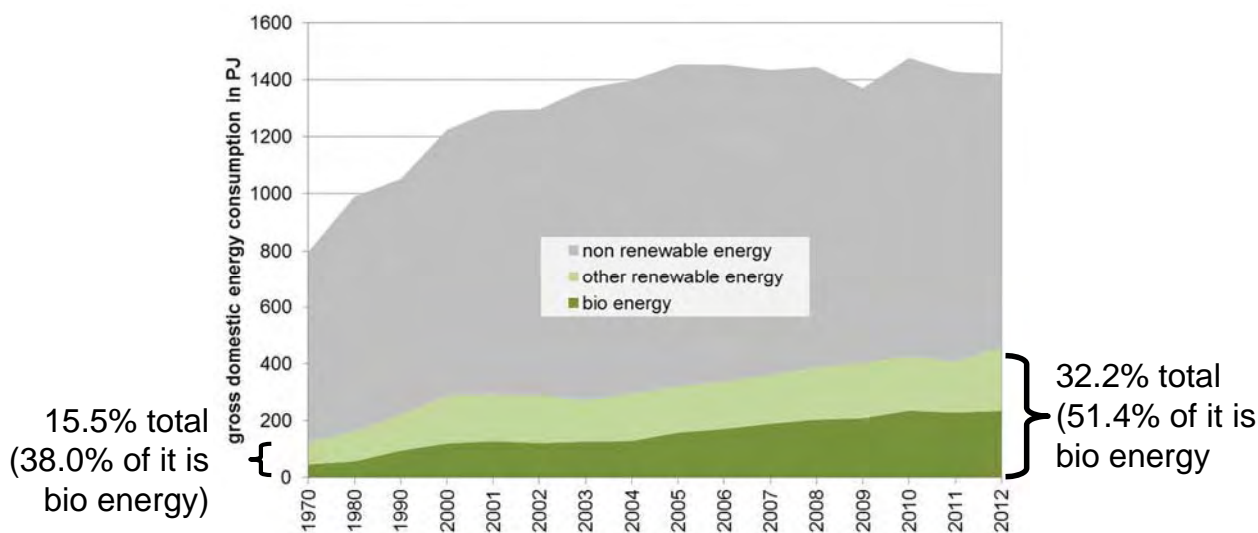
- start 2009: subsidy € 3000/unit
- from 2010: subsidy € 2000/unit
- from 2013: €2000/€3000/€5000
- duration: until 2016
- budget: 15 million €/a
- 7.500 funded units/a
- 2013: accustomed to oil prices and increasing biomass price: influence rises again



Sources: Heizen mit Öl GmbH and Institut für die wirtschaftliche Ölheizung (IWO)

Solid Biomass – Fuels

renewable energy in gross domestic consumption



Source: data: Statistik Austria, latest data 2012

Solid Biomass – Fuels

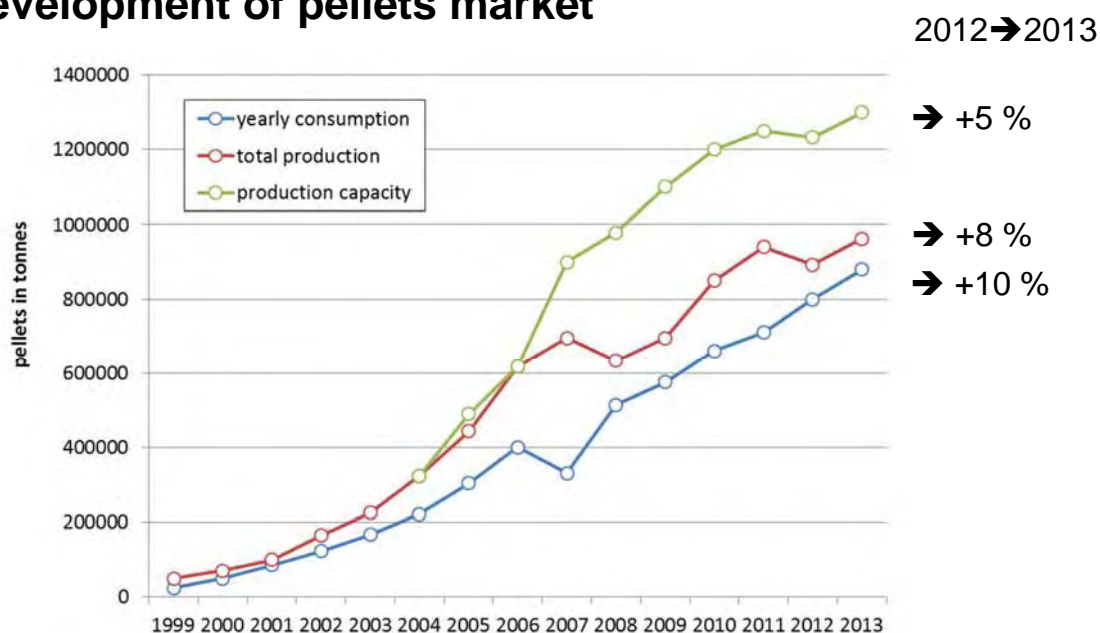
solid biomass: ingredients



2013:	
briquettes:	2.8 PJ
pellets:	14.9 PJ
bark:	6.9 PJ
chips:	83.3 PJ
log:	70.8 PJ
Total:	178.7 PJ
2012 → 2013:	+3.1%

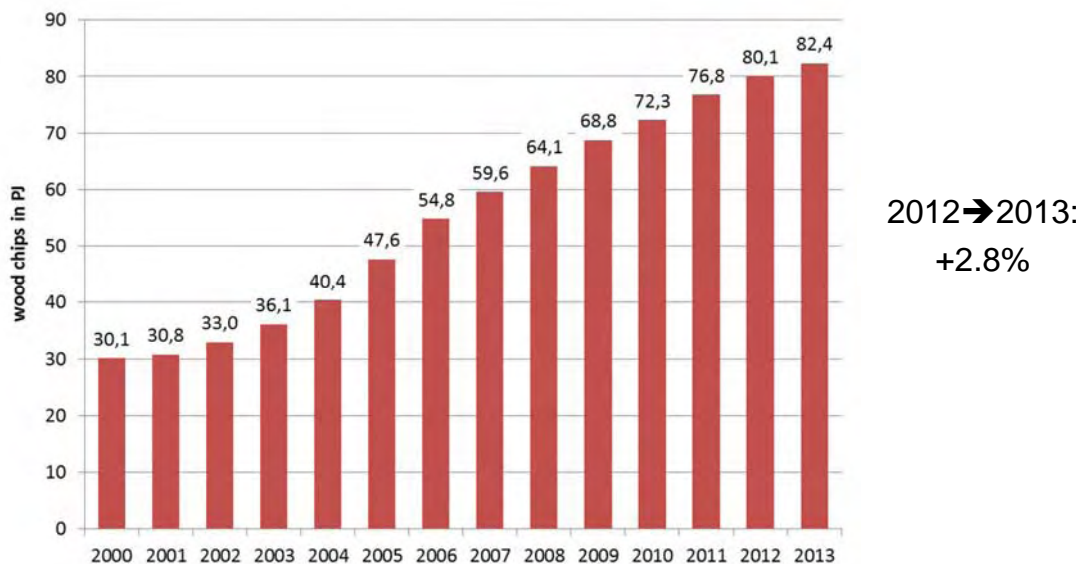
Source: BIOENERGY 2020+

development of pellets market



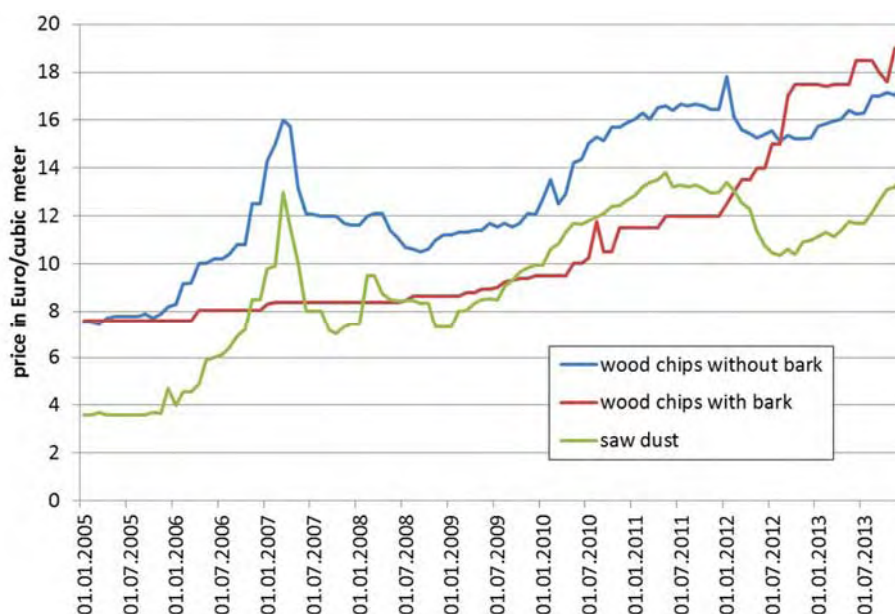
Source: data: ProPellets Austria, BIOENERGY 2020+

market development wood chips



Source: BIOENERGY 2020+

price development of wood biomass



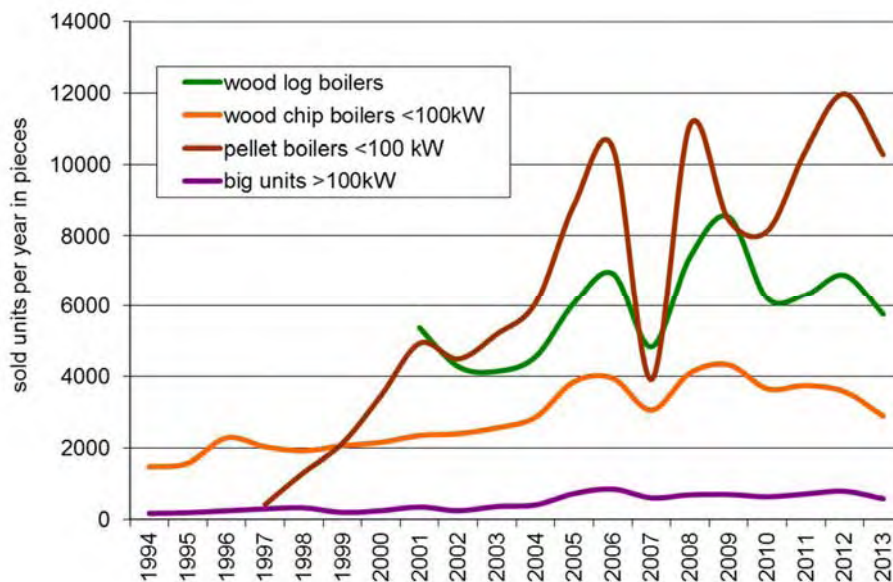
Source: Wiener Börse

national economy indicators 2013

- energy produced: 179.6 PJ
- CO₂-reductions: 10.0 million t
- turnover: 1,344 million €
- jobs: 13,060
- trade balance: 1,099,178 t import

Solid Biomass – Boilers and Stoves

market development of biomass boilers



2012→2013:

-16,0%

10.281 (-14,1%)

5.754 (-16,5%)

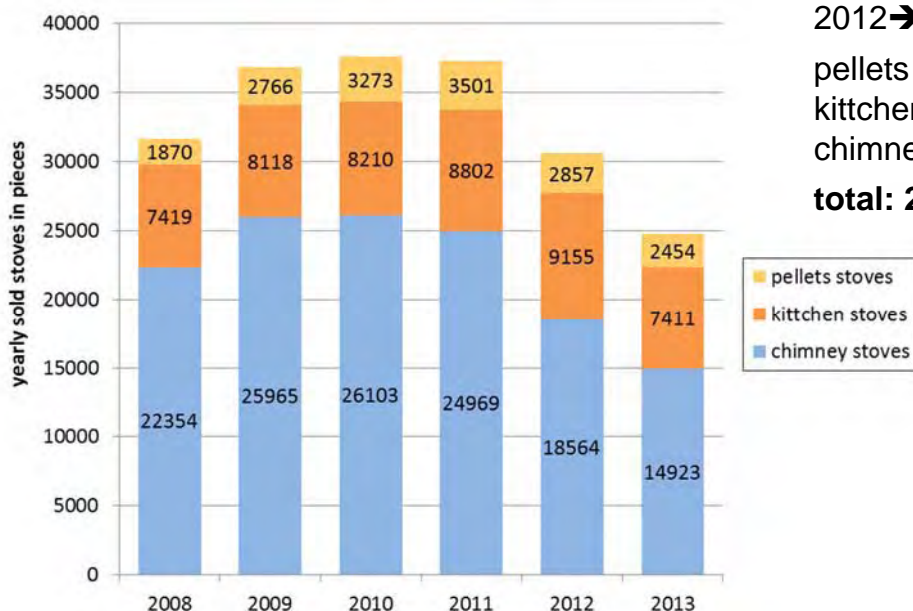
2.891 (-19,1%)

586 (-26,4%)

Source: data: Landwirtschaftskammer NÖ

Solid Biomass – Boilers and Stoves

market development of biomass stoves



2012→2013

pellets stoves: -14,1%

kitchen stoves: -19,0%

chimney stoves: -19,6%

total: 24.788 -18,9%

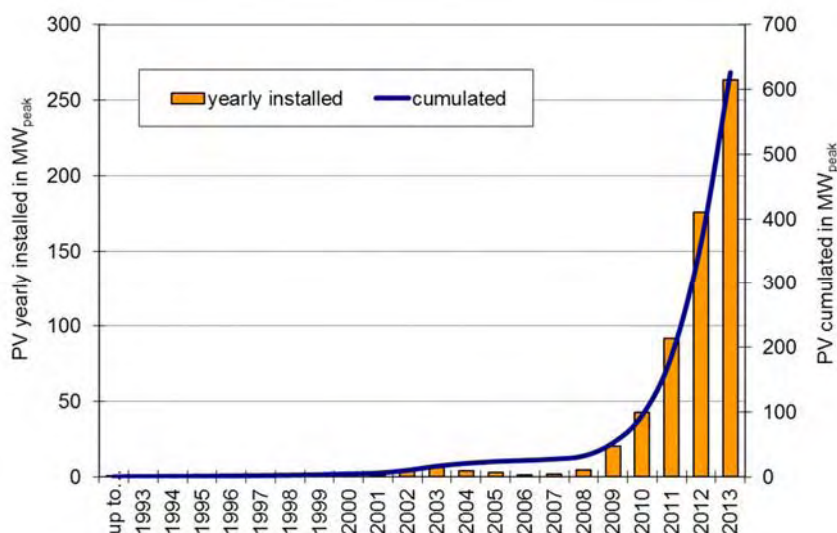
Source: BIOENERGY 2020+

national economy indicators 2013

- turnover: 1,083 million €
- jobs: 5,043 full time equivalent
- export rate: 75 %

Photovoltaics

development of home market



2013 installed:

grid con.: 262.6 MW_{peak}
autarkic: 0.5 MW_{peak}
total: 263.1 MW_{peak}
total: +49.7%

cumulated: 626 MW_{peak}

PV-module production 2013 in Austria:

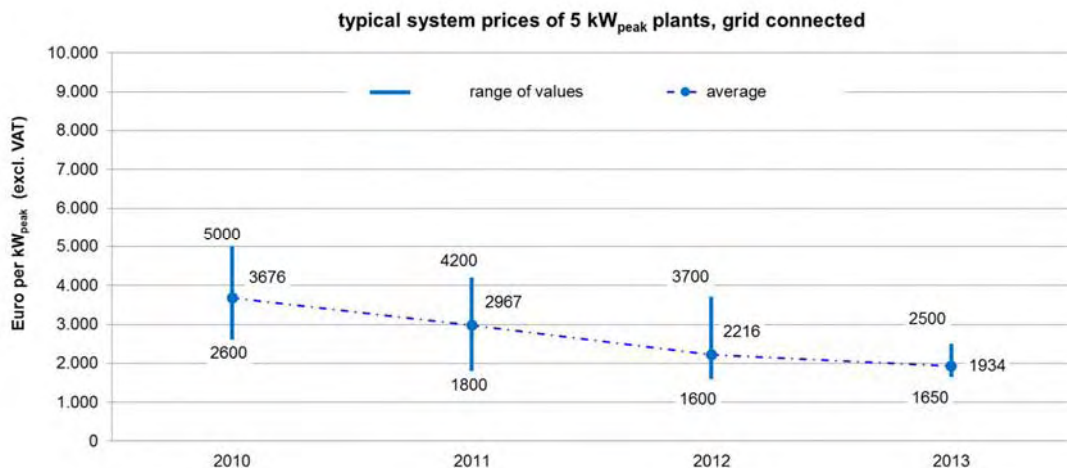
production in Austria:	74.5 MW _{peak} (+5.1%)
export :	29.9 MW _{peak} (-38.4%)
Inland market:	263.1 MW _{peak} (+49.7%)

Inverter production 2013 in Austria:

production in Austria:	470 MW _{peak} (-37,5%)
export rate:	97%

Source: FH Technikum Wien

Development of PV system prices



2012 → 2013: -12.8%
2010 → 2013: -47.4%

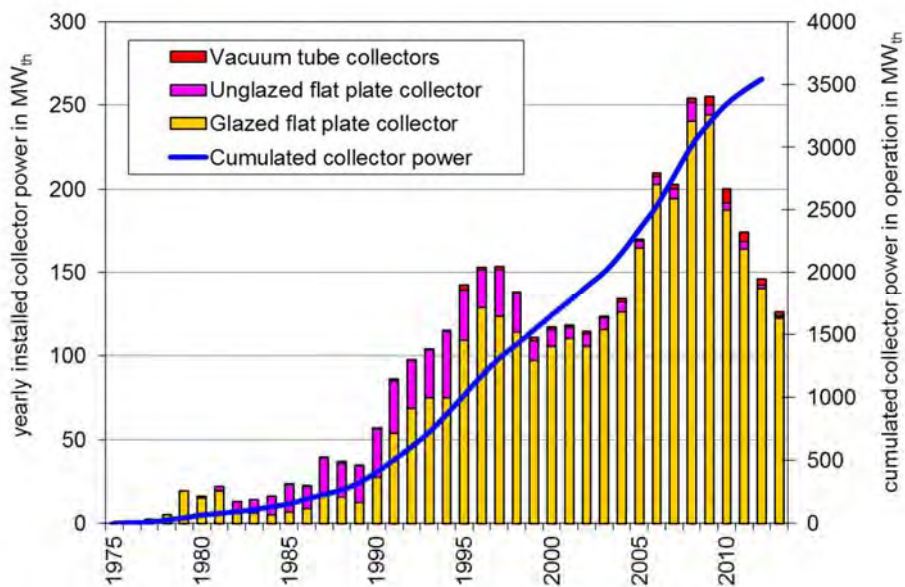
Source: FH Technikum Wien

national economy indicators 2013

- electricity production: 626 GWh
- CO₂-savings: 227,416 t
- turnover: 509 Mio.€ (home market)
- jobs: 4,843 full time equivalent
- export rate (PV-modules): 40%

development of home market

Source: Faninger (2007), AEE INTEC



solar thermal collector market 2013

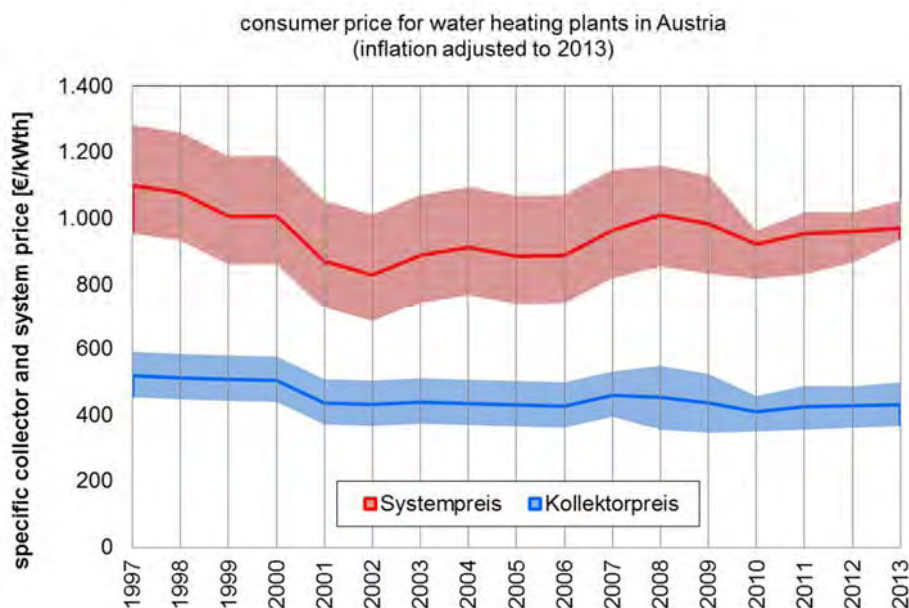
production in Austria:	945,118 m ²	(-16.8%)
export from Austria:	765,038 m ²	(-16.7%)
Austrian home market:	181,650 m ²	(-13.3%)
in operation in Austria:	5,057,617 m ²	(+2.8%)

application fields of new collectors 2013

for water heating only:	49%
for water and space heating:	51%

development of collector and system prices

Source: AEE INTEC

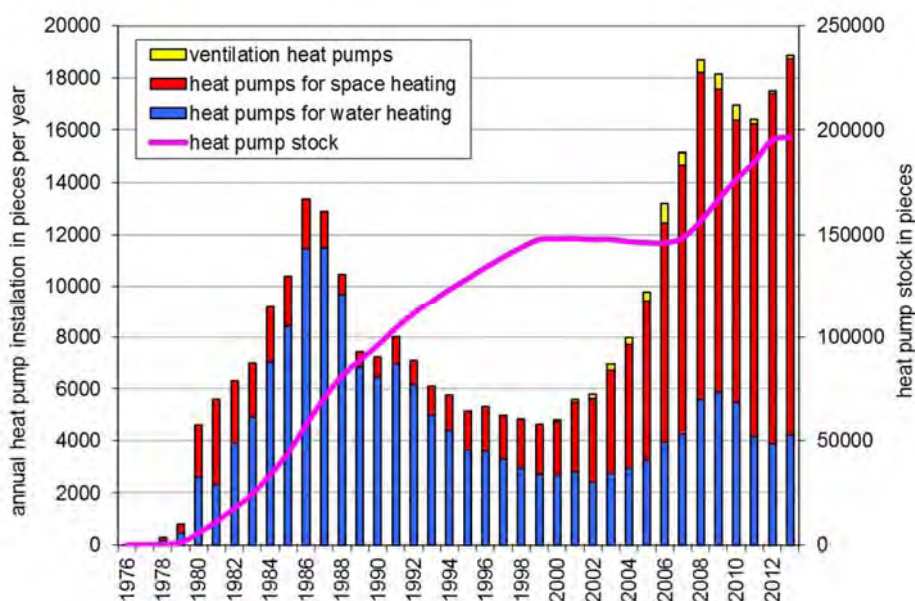


national economy indicators 2013

- heat production: 2,051 GWh_{th}
- CO₂-savings: 441,160 t
- turnover: 293 Mio.€
- jobs: 2,900 full time equivalent
- export rate: 81%

Heat Pumps

development of home market



Source: Faninger (2007), EEG

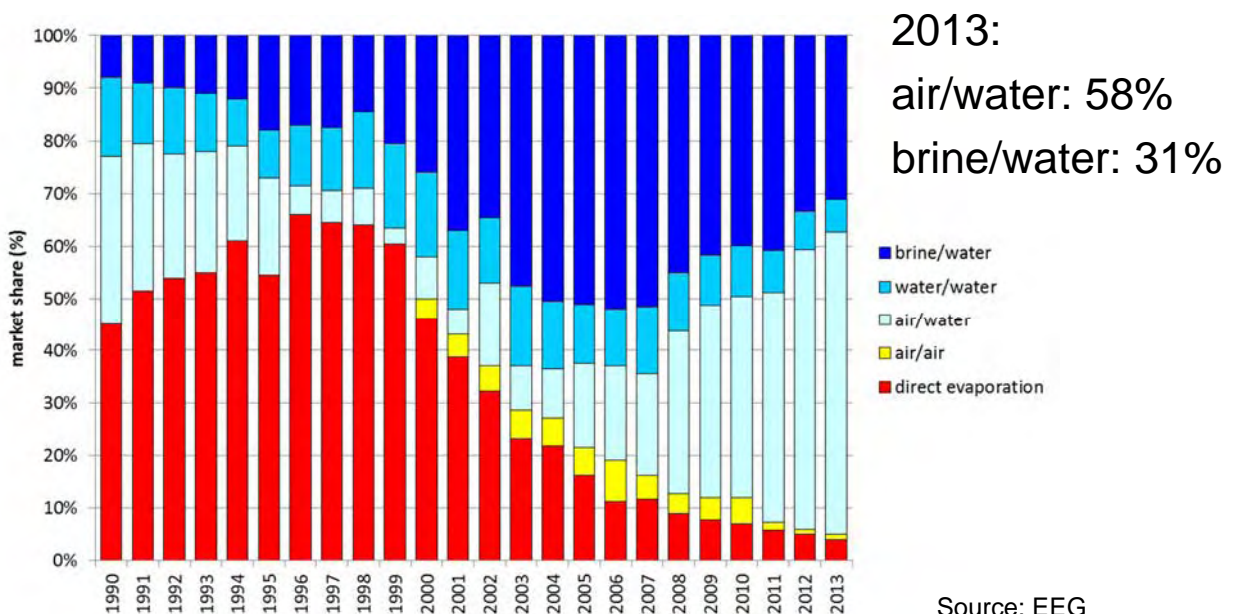
market development 2013

total sales:	27,638 pieces (+0.5%)
export:	9,219 pieces (+6.7%)
Austrian home market:	18,419 pieces (-2.3%)
in operation in Austria:	208,727 pieces (+6.2%)

market development 2013 by type

heating / combined Austria:	14,406 pieces (-0.6%)
heating / combined export:	7,358 pieces (+5.0%)
water heating Austria:	3,847 pieces (-8.7%)
water heating export:	1,760 pieces (+15.8%)

heat sources in Austria



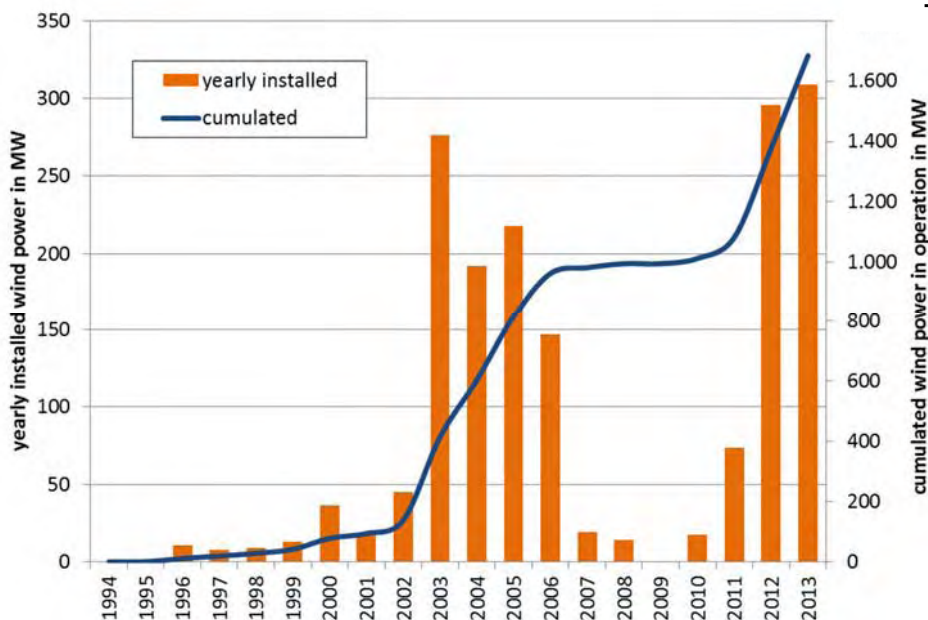
national economy indicators 2013

- ambient heat: 1,841 GWh_{th}
- CO₂-savings (net value): 473,504 t
- turnover: 250 Mio.€
- jobs: 1,271 full time equivalent
- export rate: 33%

development of home market

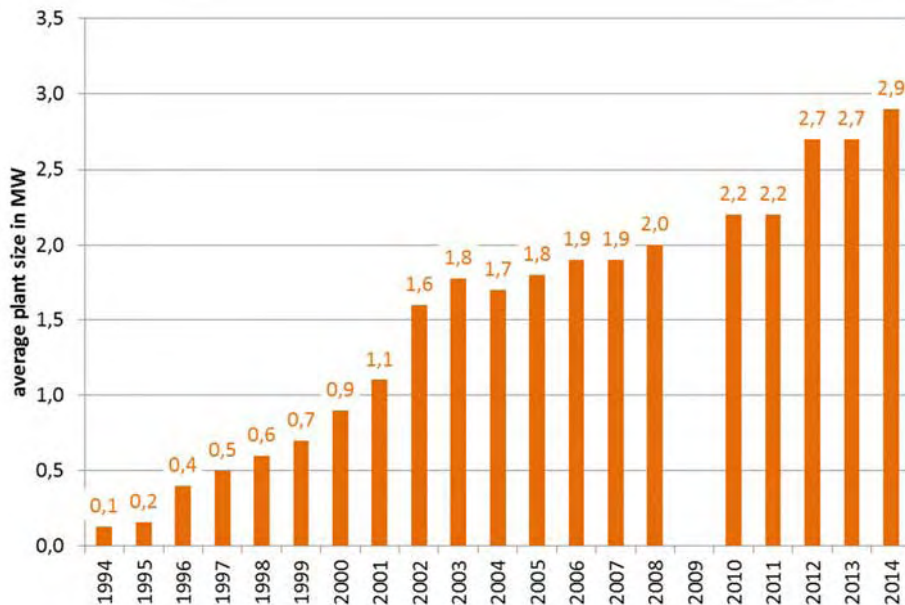
2012→2013:
+4.4%

Source: IG Windkraft



plant size in home market

Source: IG Windkraft



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national economy indicators 2013

- electricity produced: 3,600 GWh_{el}
- CO₂-savings (net value): 1,315,364 t
- turnover: 873 Mio.€
- jobs: 4,500 full time equivalent
- export rate: 59%

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Conclusions (1)

- The signaling effect of the now long-term relatively high and increasingly stable oil price decreases.
- Private Investments triggered by the uncertainties of the financial and economic crises run out.
- Low new-build and refurbishment rates dampen investment of households in heating systems.
- Increasing biomass price is a limiting factor. Critical pellets price in 2006 was achieved in 2013.
- Solar thermal and photovoltaics are competing for space and private investment resources.

Conclusions (2)

- Solar thermal: the tech-savvy group of customers with a high willingness to pay is exhausted; for further market diffusion technology and price must move.
- Production site Central Europe: stable pursuit of innovation required! (Quality, procedures, costs, prices, markets, system innovations)
- Research: building up human capital for research is based on long-term stable funding. Real innovations arising out of creative freedom of these researchers.

We thank you for productive co-operation:

- Austrian companies
- Austrian technology associations
- Subsidy allocating institutions
- Provincial energy departments
- Collaborators of R&D institutions

Thank you for your attention!

the final report on the web:

<http://www.nachhaltigwirtschaften.at/iea/results.html/id7668> (de)

<http://www.nachhaltigwirtschaften.at/iea/results.html/id7669> (en)