

# Strategies of Austrian's Energy Research

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**Federal Ministry of Transport, Innovation and Technology**

**Solar Paces 2011**

**Vienna, 7.4.2011**

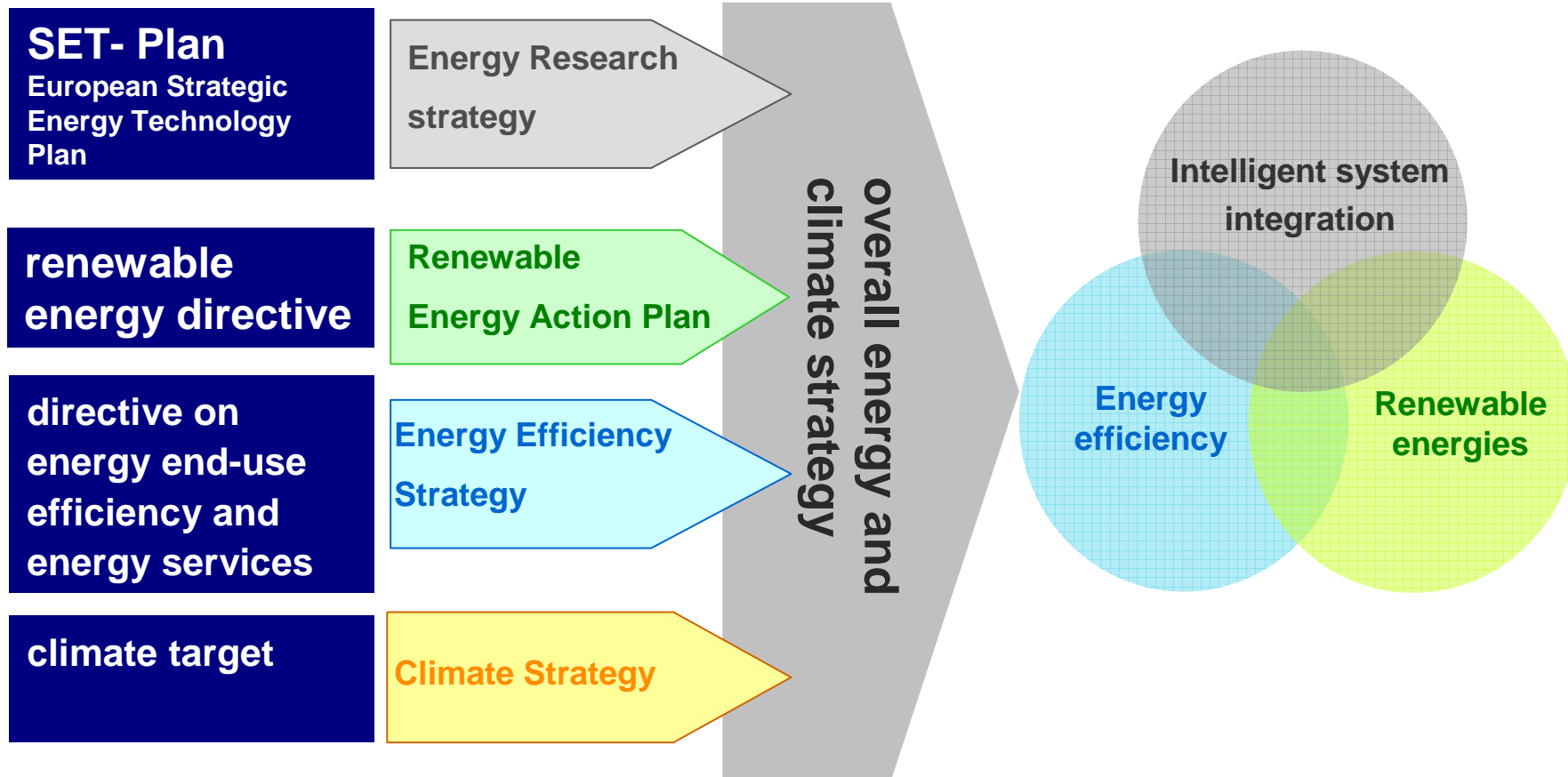
# Comprehensive Energy Strategy

EU



National

20-20-20 targets



# Austrian Policy Targets



- Renewables

Increase the share of renewables from 23.3% (2005) to 34% by 2020 (28 % in 2007)

- Transport

10% share of renewables in transport by 2020

- Efficiency

increase of energy efficiency by 9% by 2016 compared to business as usual Scenario based on 2001-2005

- Green House Gas Reduction

decrease by 16 % by 2020 based on 2005

- Research expenditures

3 % of GDP by 2010 (2,73 % in 2009)

Energy: triplicate public energy research expenditures (increase to 0,04 % of GDP)

# Strategy Process „e2050“

## Objective:

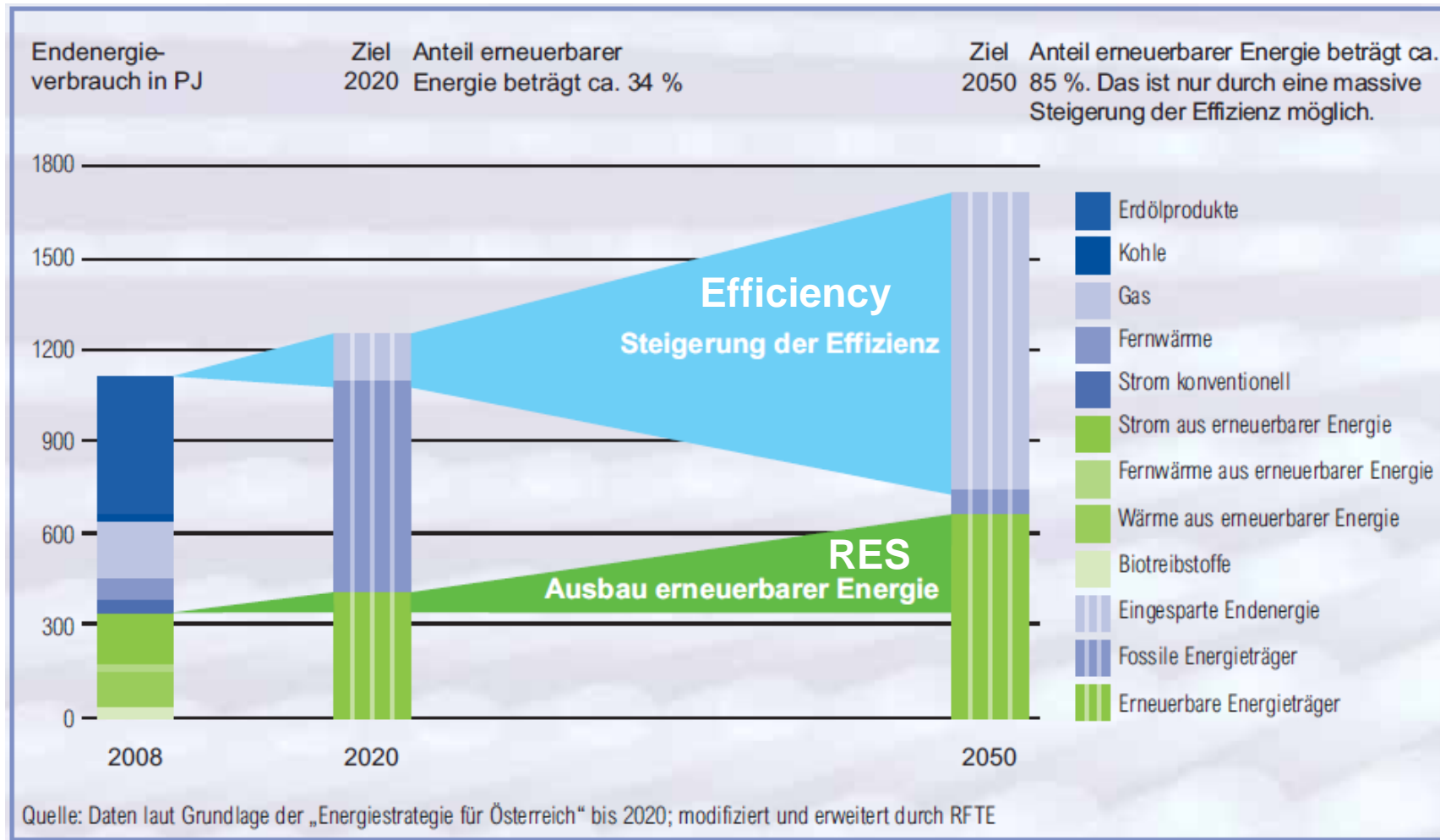
- development and evaluation of longterm energy-options (technology paths)
- definition of innovation strategies and set up of RTD-programmes
- formulation of basics for an Austrian energy research strategy
- formulation of input for an overall energy and climate strategy of the Austrian Government

## Results:

- expert's report on thematic priorities
- technology roadmaps for Austria (PV, Solarthermal, **Grids ...**)
- Research Agenda Solarthermie
- Austrian Energy Research Strategy



# Making the Zero Carbon Society Possible!

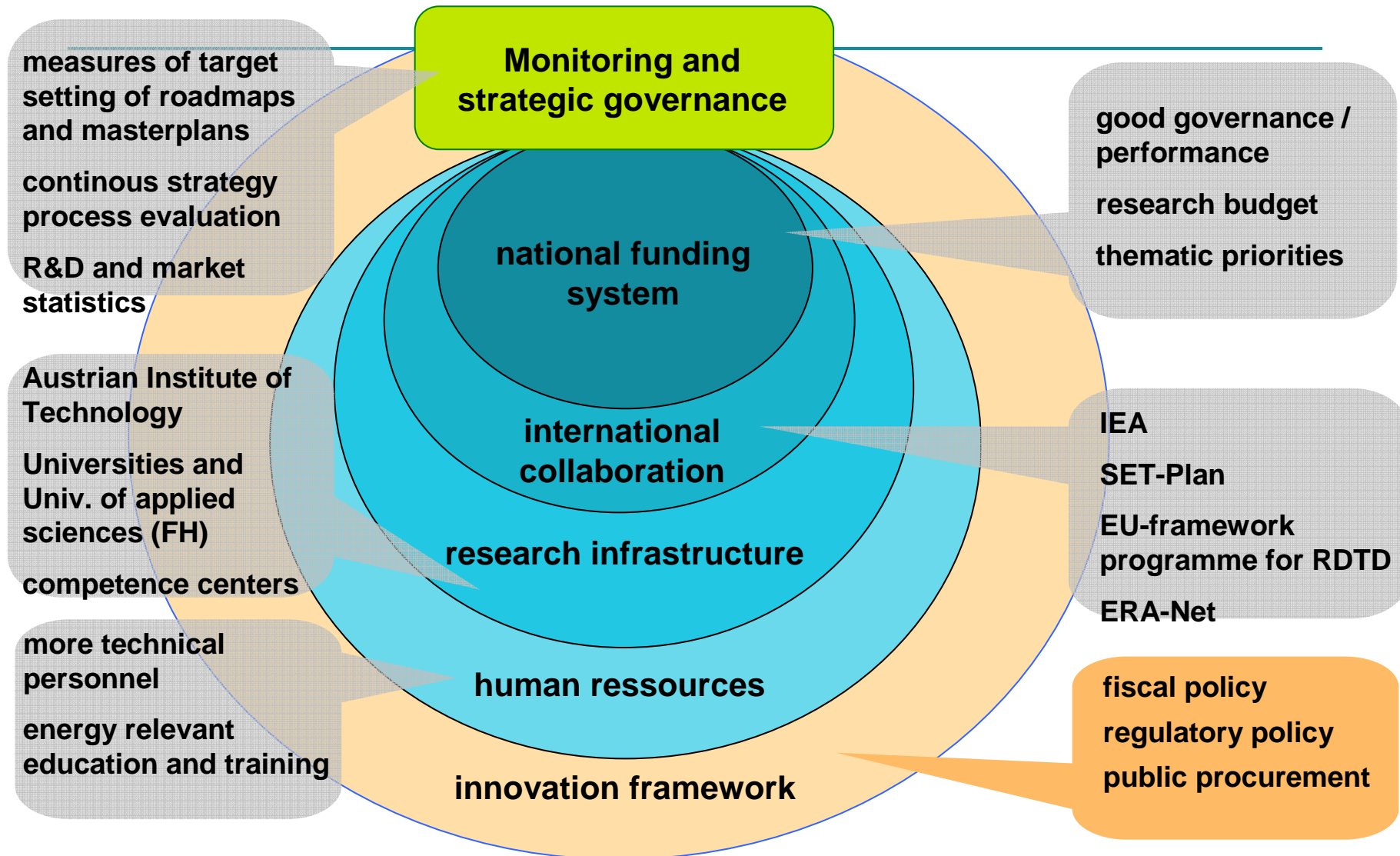


# Energy Research Strategy Targets

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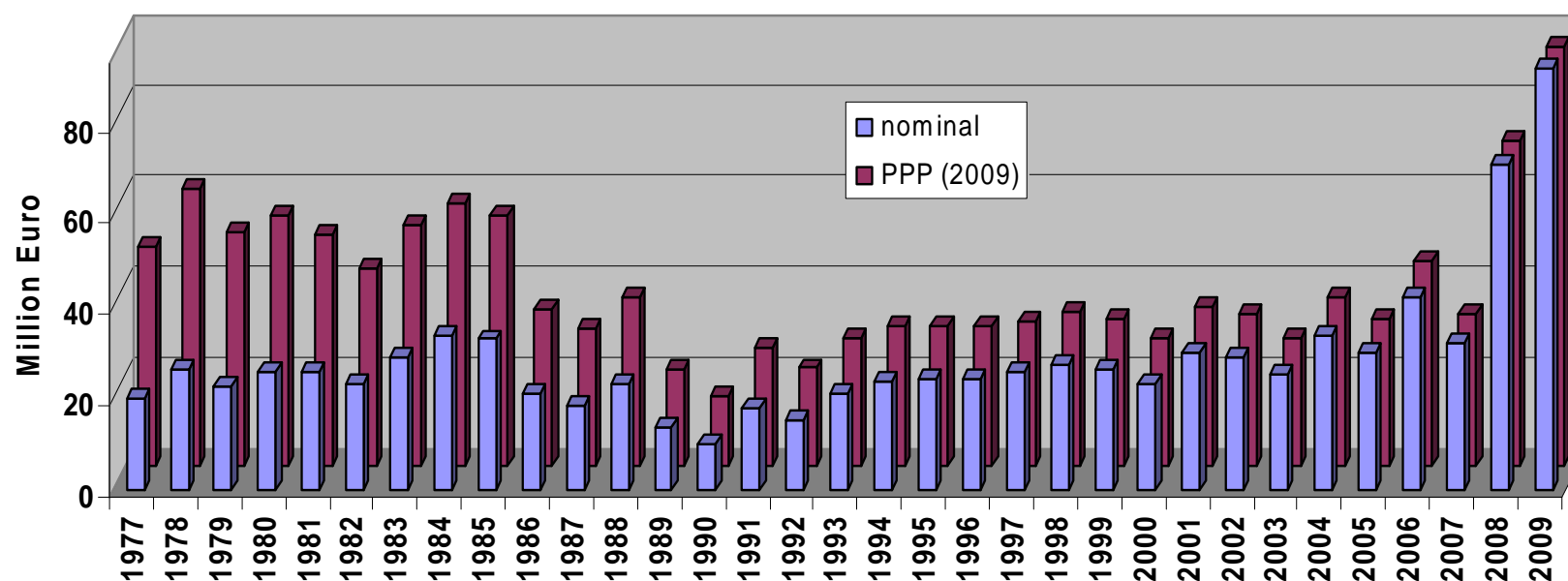
- **goals of energy policy:**
  - security of energy supply – cost effectiveness – environmental friendly
- **additional goals research, technology and innovation policy**
  - attractive country for research headquarters
  - technological and market leaderships
  - creating jobs through R&D and innovation
- **contradictory goals and win-win-situations:**
  - contradictory: cost effectiveness vs. security of energy supply and sustainability
  - Win-Win-situation: low carbon technologies - contribute to climate and energy goals and create new markets

# Operation levels and measures

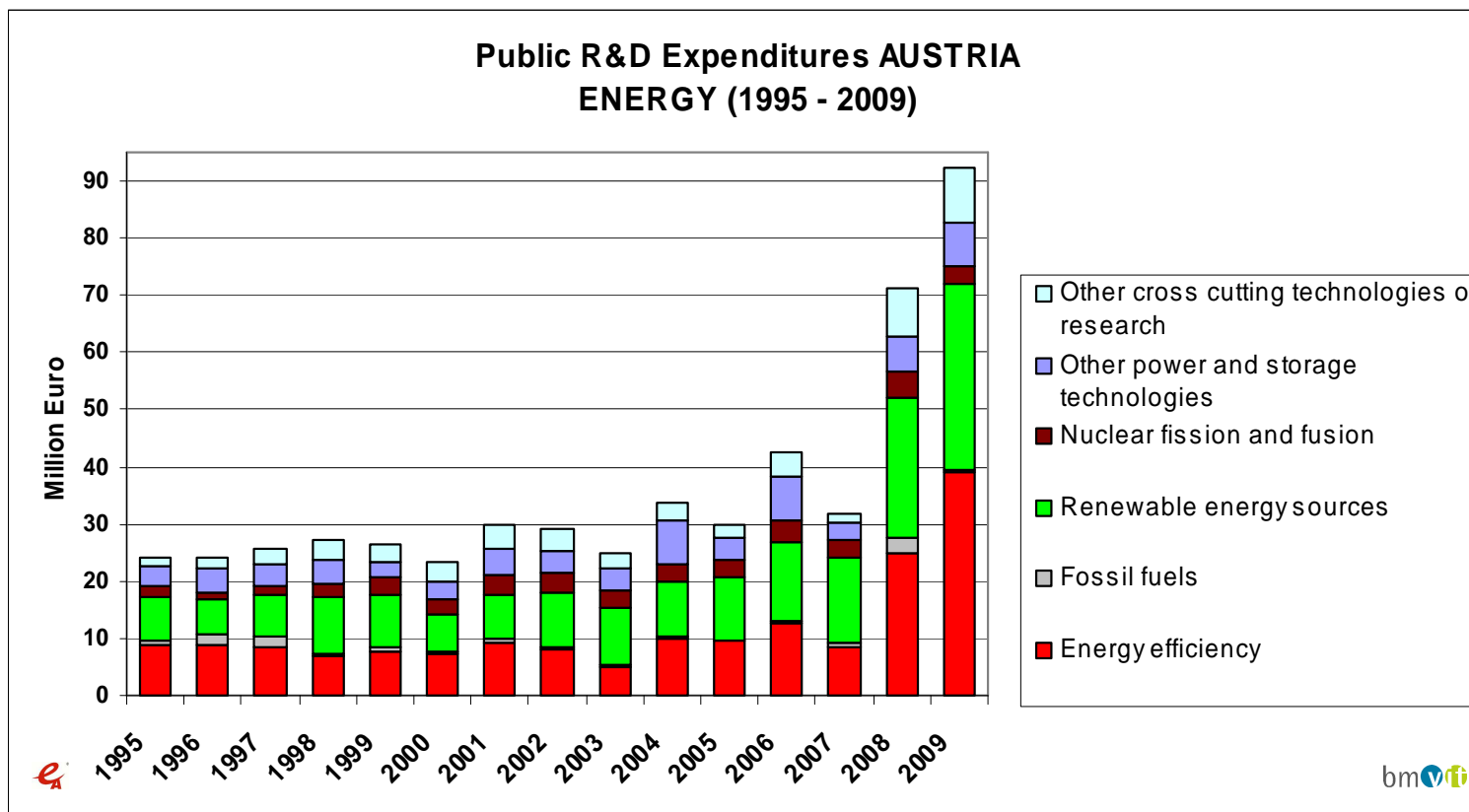


# Public Expenditures (92 Million Euro for Energy R&D in 2009)

## Public R&D expenditures energy - AUSTRIA

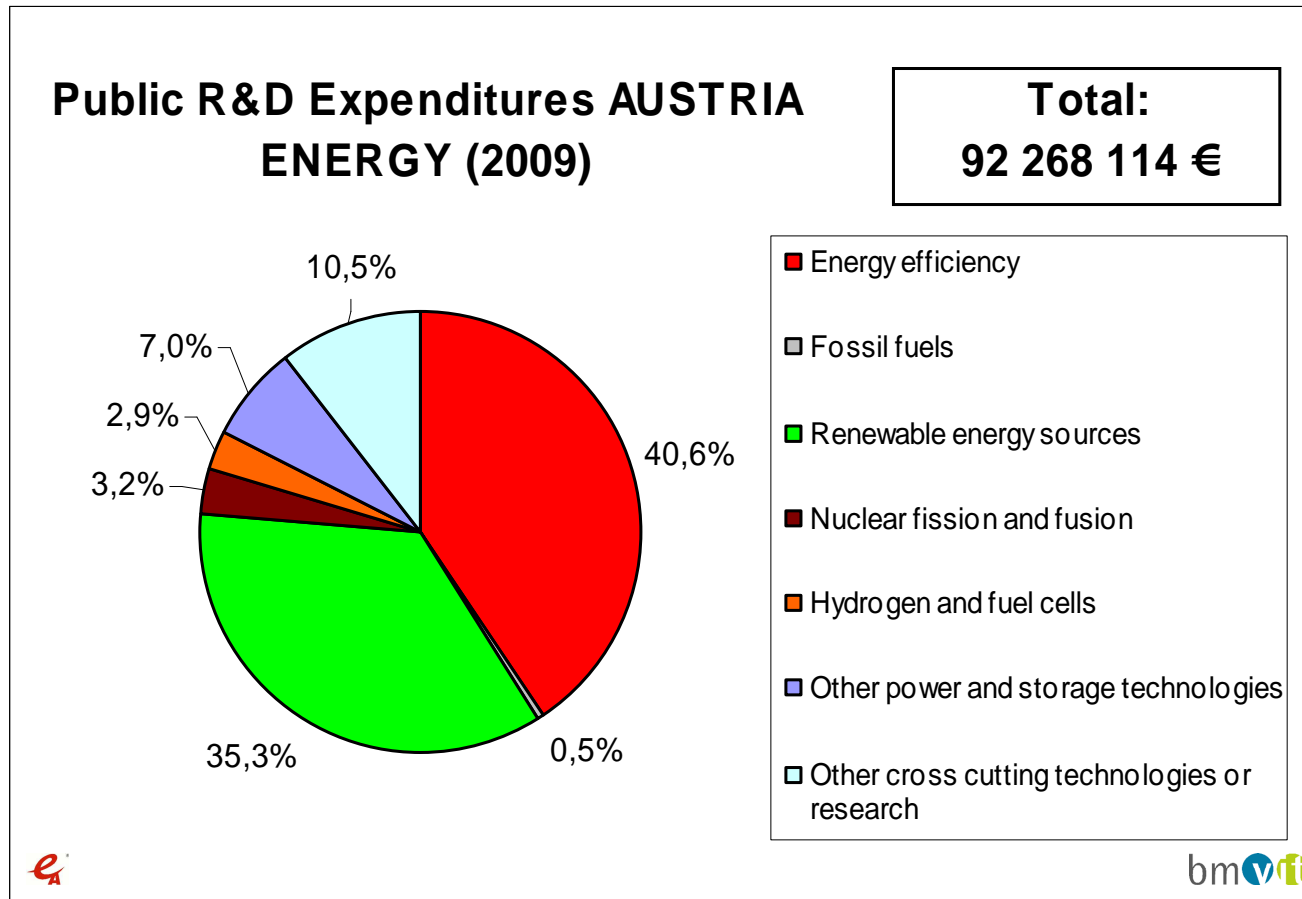






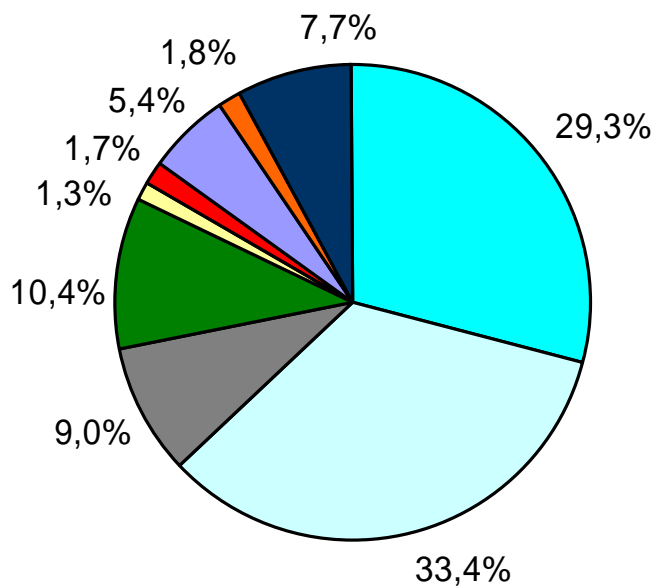
in dieser Zeitreihe wurden H2 und FC auf BMVIT-Wunsch immer in die alten Kategorien vor 2005 zurückgerechnet, um besserer Vergleichbarkeit der Zeitreihe zu haben.










# Energy Sectors



**Public R&D Expenditures AUSTRIA  
ENERGY - Institutions (2009)**

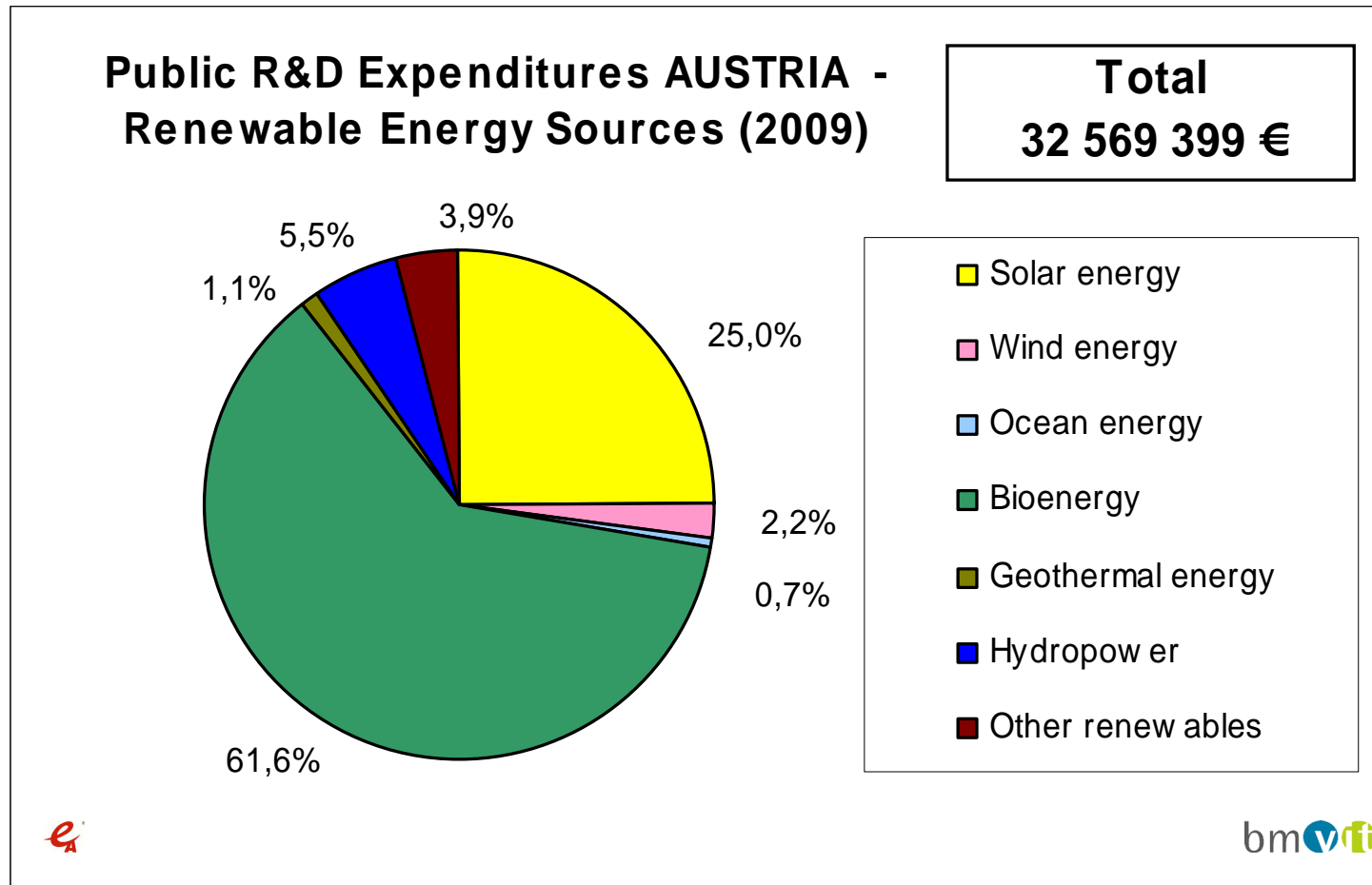
**Total:  
92 268 114 €**



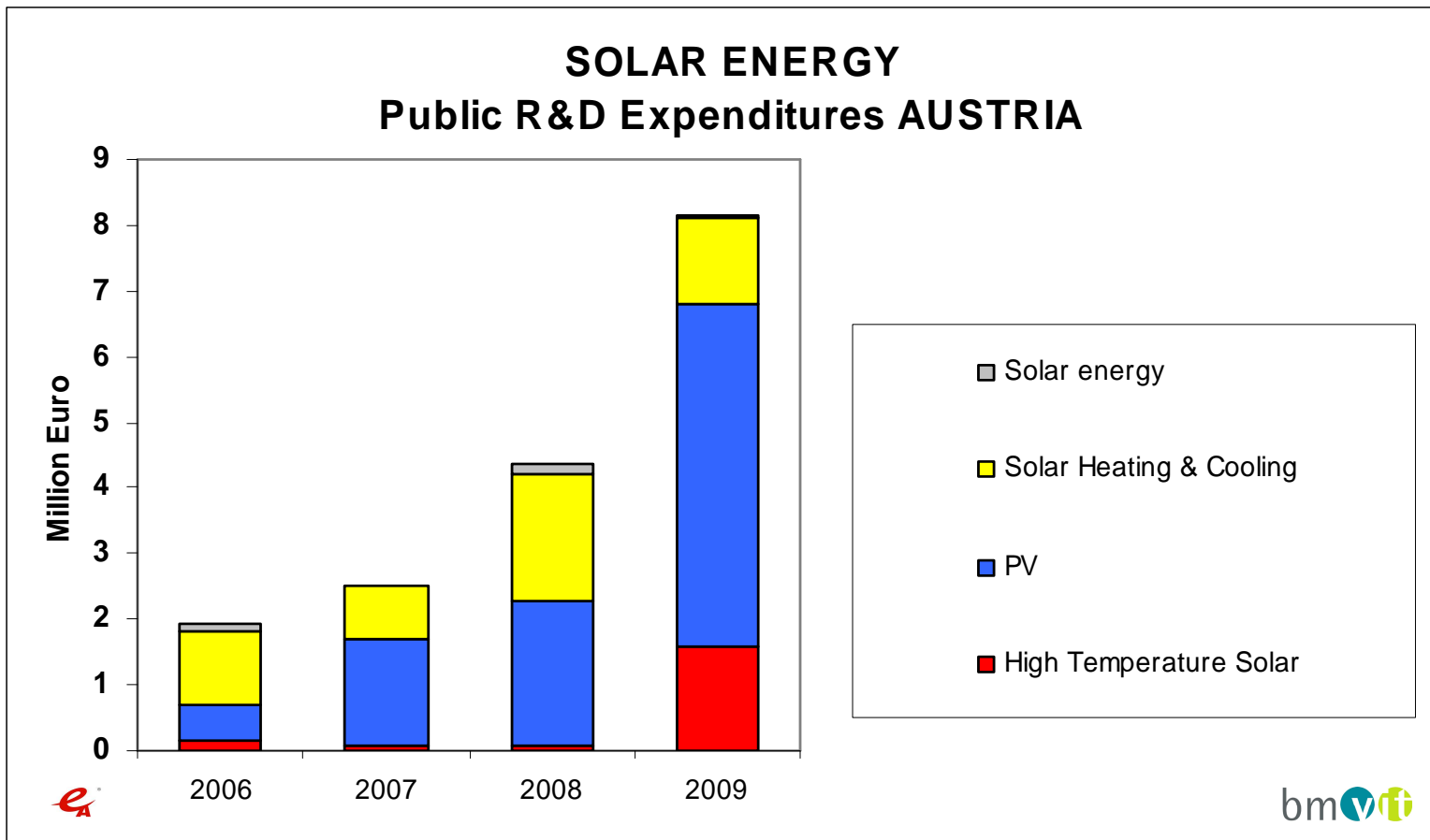
-  Federal ministries
-  Climate and Energy Fund
-  Länder (provinces)
-  Research Promotion Agency (FFG), Basisprogramme
-  Austrian Science Fund (FWF)
-  AWS (national promotional bank)
-  Non-university research institutions
-  Fachhochschulen (colleges)
-  Universities



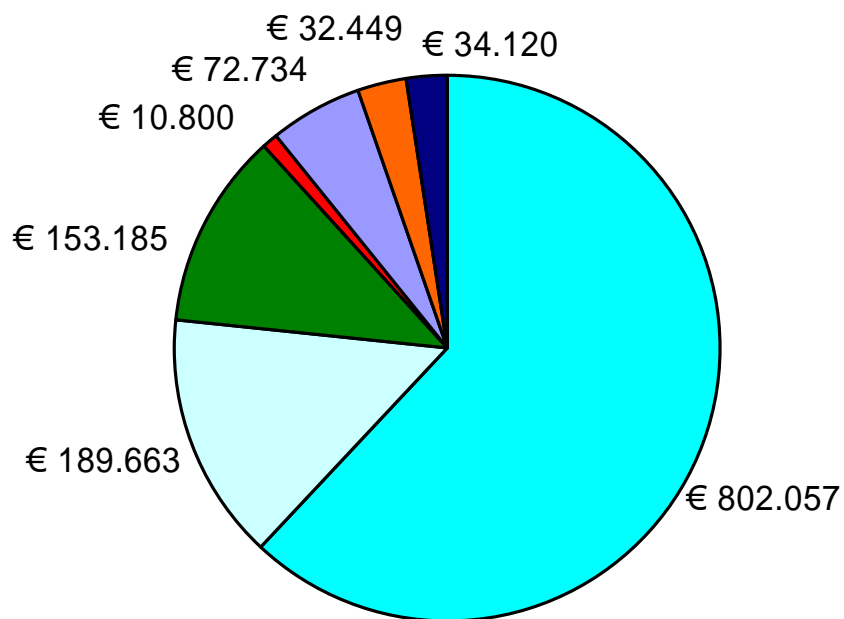
# Renewable Sector



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- Für den Themenbereich Sonnenenergie wurden 2009 insgesamt 8.132.254 Euro aufgewendet. Der Bereich Fotovoltaik hat mittlerweile den Bereich Solares Heizen und Kühlen deutlich überholt. Interessant ist auch der vergleichsweise hohe Anteil im Bereich der Solar-Hochtemperatur in diesem Berichtsjahr, einem für Österreich eher neuen Forschungsgebiet.



### Public R&D Expenditures AUSTRIA Solar Heating and Cooling (2009)



- Federal ministries
- Climate and Energy Fund
- Research Promotion Agency (FFG), Basisprogramme
- AWS
- Non-university research institutions
- Fachhochschulen (colleges)
- Universities





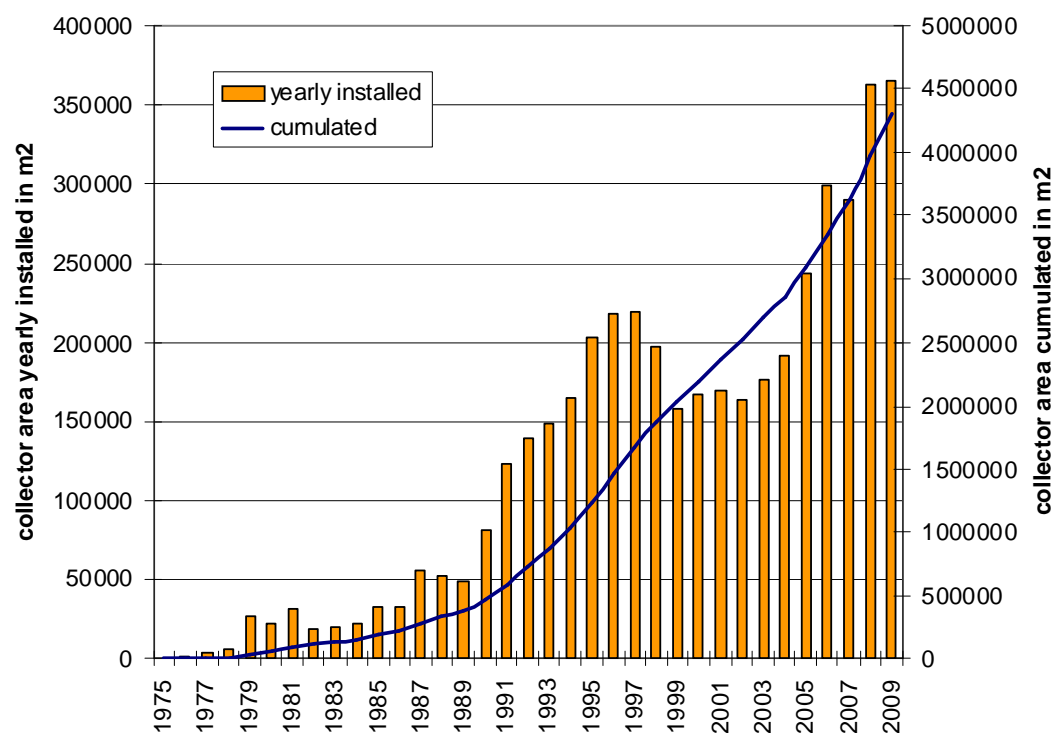
# Solar Heating and Cooling – R&D subcategories (2009)

	Euro
Solar heating and cooling (no detailed allocation possible)	115 978
Collectors	560 787
Combisystems	37 000
Heat for low temperature industrial processes	35 591
Solar cooling	545 652
<b>TOTAL Solar heating and cooling</b>	<b>1 295 008</b>

- **active involvement of Austrian experts in the implementing agreements and expert groups of the International Energy Agency (IEA)**
- **Austrian participations in the EU Framework Programme for Energy**
- **increasing participations in European Technology Platforms and PPP (Solar, ...)**
- **Joint calls within energy relevant ERA-Nets (Bioenergy, ...)**
- **aspired participation of Austria in the planned „European Energy Research Alliance“**

# Solar Thermal Collectors

## development of home market 2009



### 2009 installed:

unglazed.: 8.342 m<sup>2</sup>

glazed: 348.408 m<sup>2</sup>

vacuum: 7.759 m<sup>2</sup>

air coll.: 378 m<sup>2</sup>

**total: 364.887 m<sup>2</sup>**

total: +0,5%

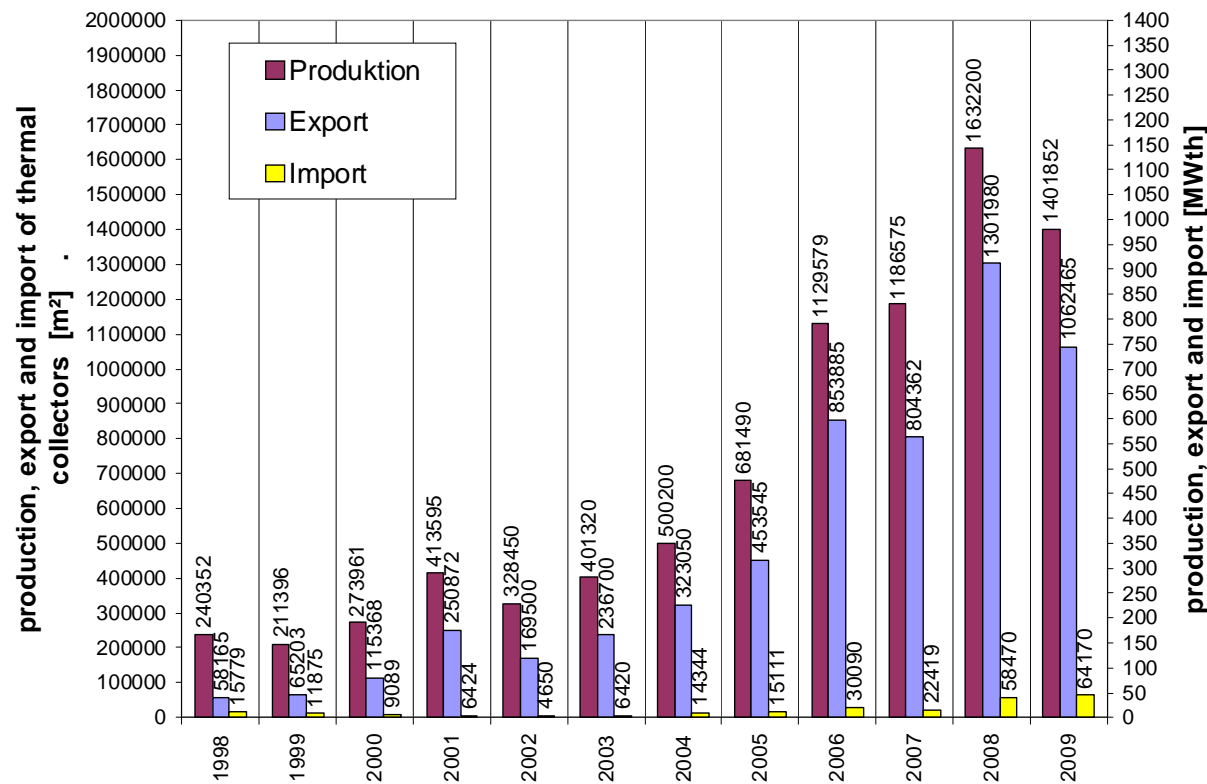
cumulated: 4,3 Mio. m<sup>2</sup>

3,0 GW<sub>th</sub>

Source: Faninger (2007), AEE INTEC

# Solar Thermal Collectors Export

## development of export market 2009



**2009:**

production: -14%

export: -18%

import: +10%

Source: Faninger (2007), AEE INTEC

## Potential of thermal solar energy systems in trade and industry

- Documentation of realized plants for the use of thermal solar energy in trade and industry companies
- Identification of production processes and branches, which have a demand for low-temperature heat
- Determination of the potential of solarthermal systems to provide low-temperature heat
- Pilot projects in selected branches (brewery, laundries ...)
- participation in IEA SHC task 33 Solar Process Heat



Source: AEE INTEC

# ENERGY Base Vienna



- reduction of energy consumption by 80 %
- 100 % supply with daylight by light control
- passive house office building
- 4500 m<sup>2</sup> offices
- 1500 m<sup>2</sup> laboratories
- 100% heating and cooling based on Renewables
- 400 m<sup>2</sup> PV-plant => ca. 42.000 kWh/a
- Solarthermal heating and cooling
- heat pump
- plants moisturisation

# Building refurbishment



Dieselweg:

Residential area in passive house standard, Graz, Stmk.



- 🏠 Further development of Makartstraße (Linz)
- 🏠 First renovation of an whole residential area up to Passive House Standard
- 🏠 Gentle renovation by the use of prefabricated wall elements
- 🏠 Solar plant with special depressurized large-scale storage
- 🏠 Decentralised ventilation, activating of thermal mass, web-based Monitoring

End



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**Thank you for your attention!**

**more Information on austrian IEA-activities:  
<http://www.nachhaltigwirtschaften.at/iea/>**