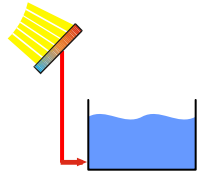


**Welcome to SOLVIS.**

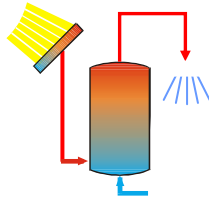


## Development of the product.



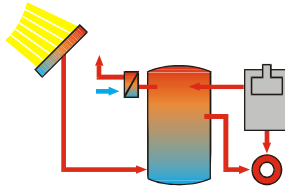
solarheating for swimming pools

1986



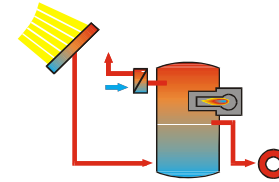
solarheating for tap water

1988



solarheating combined for heating and tap water

1996



solarheating SolvisMax gas

1998

solarheating SolvisMax oil, adjoining pellet heating

2001



energy manager SolvisMax

2004

SolvisMax system heat pump

2007

SolvisMax system district heating

2011



SolvisLino 3

2012

2013

## History of the company.

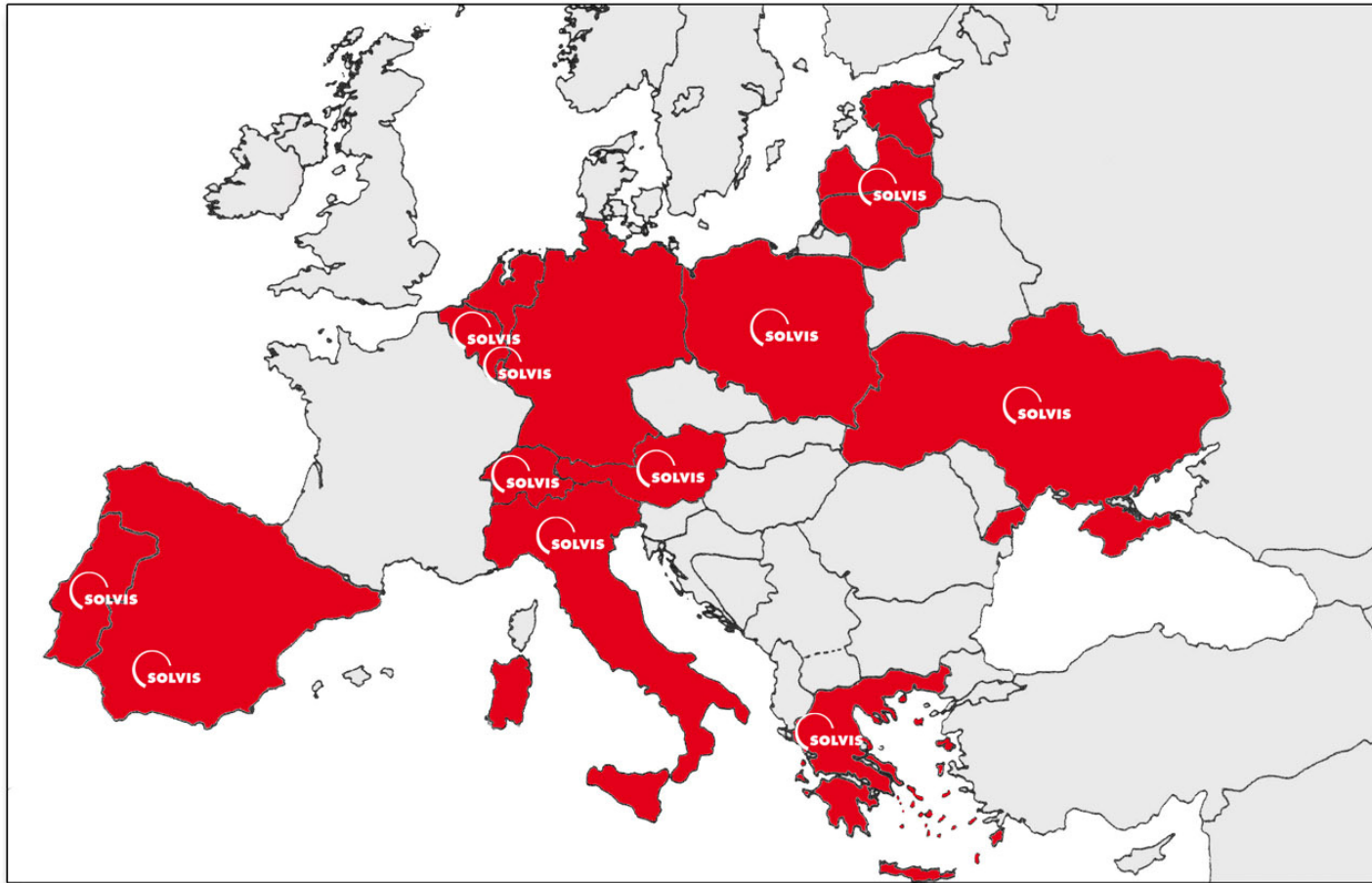


Jäger Solartechnik	formation of Solvis	formation limited partnership (Kommanditgesellschaft)	nationwide service network	zero emission factory
<b>1986</b>	<b>1988</b>	<b>1994</b>	<b>1998</b>	<b>2002</b>
	5 employees	34 employees	34 employees	91 employees
absorber production at Solvis	sales company in Spain	25 years Solvis		
<b>2006</b>	<b>2010</b>	<b>2013</b>	<b>2014</b>	<b>2016</b>
150 employees	300 employees			

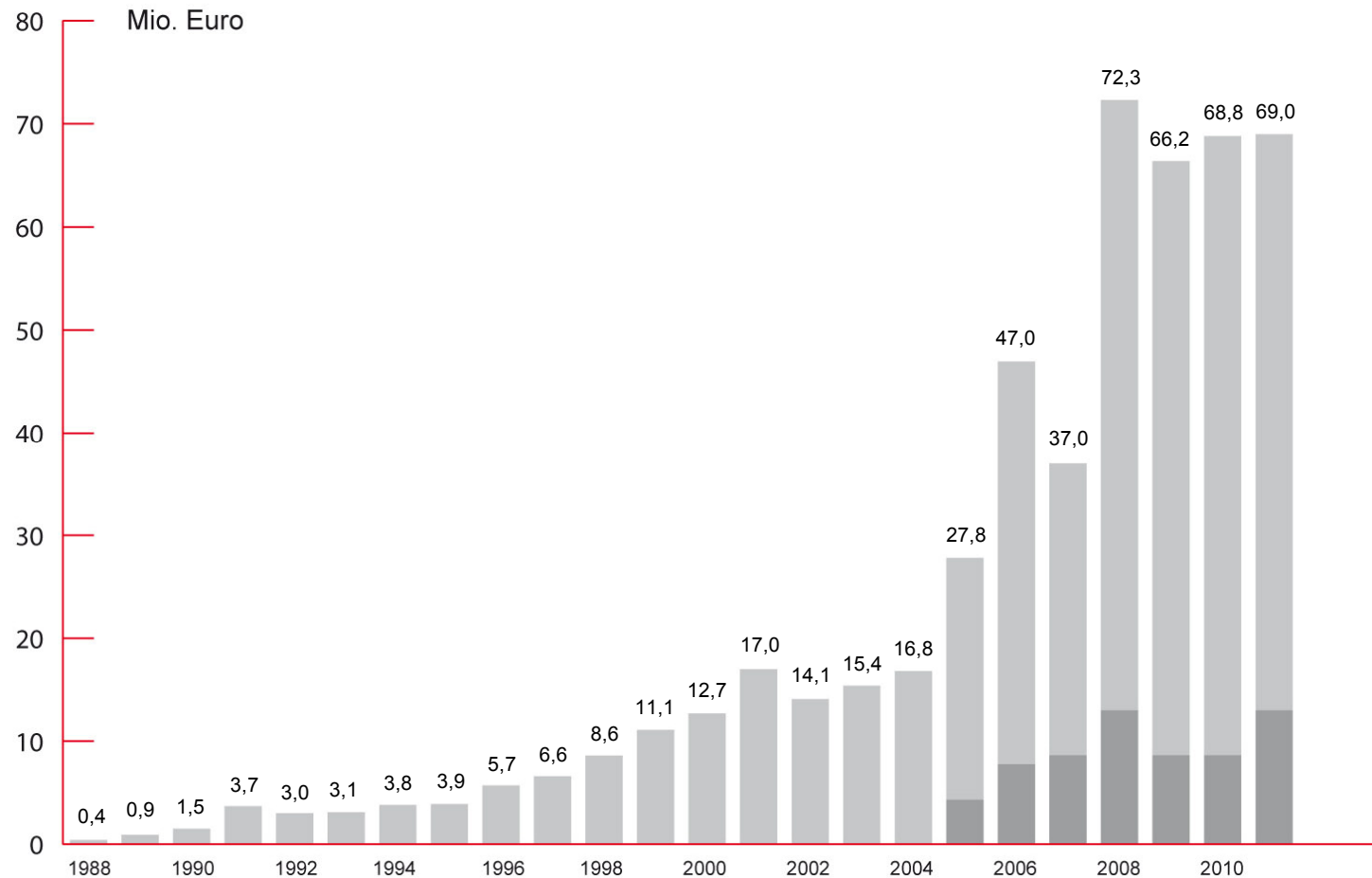
## **Solvis 2012.**

- unique concept for solarheating system
- 64 million € business volume in 2011
- ca. 280 employees, including 35 shareholder
- 29 sale agencies and 29 service partners in Germany
- subsidiary company in Spain
- sale agencies in Italy, Portugal, Belgium, Luxembourg, Austria, Switzerland, Baltic States und Greece
- Europe's largest zero emission factory
- the most energy-efficient commercial property in 2008
- technological leader of solarheating systems in Germany and Europe

## Solvis sales areas.



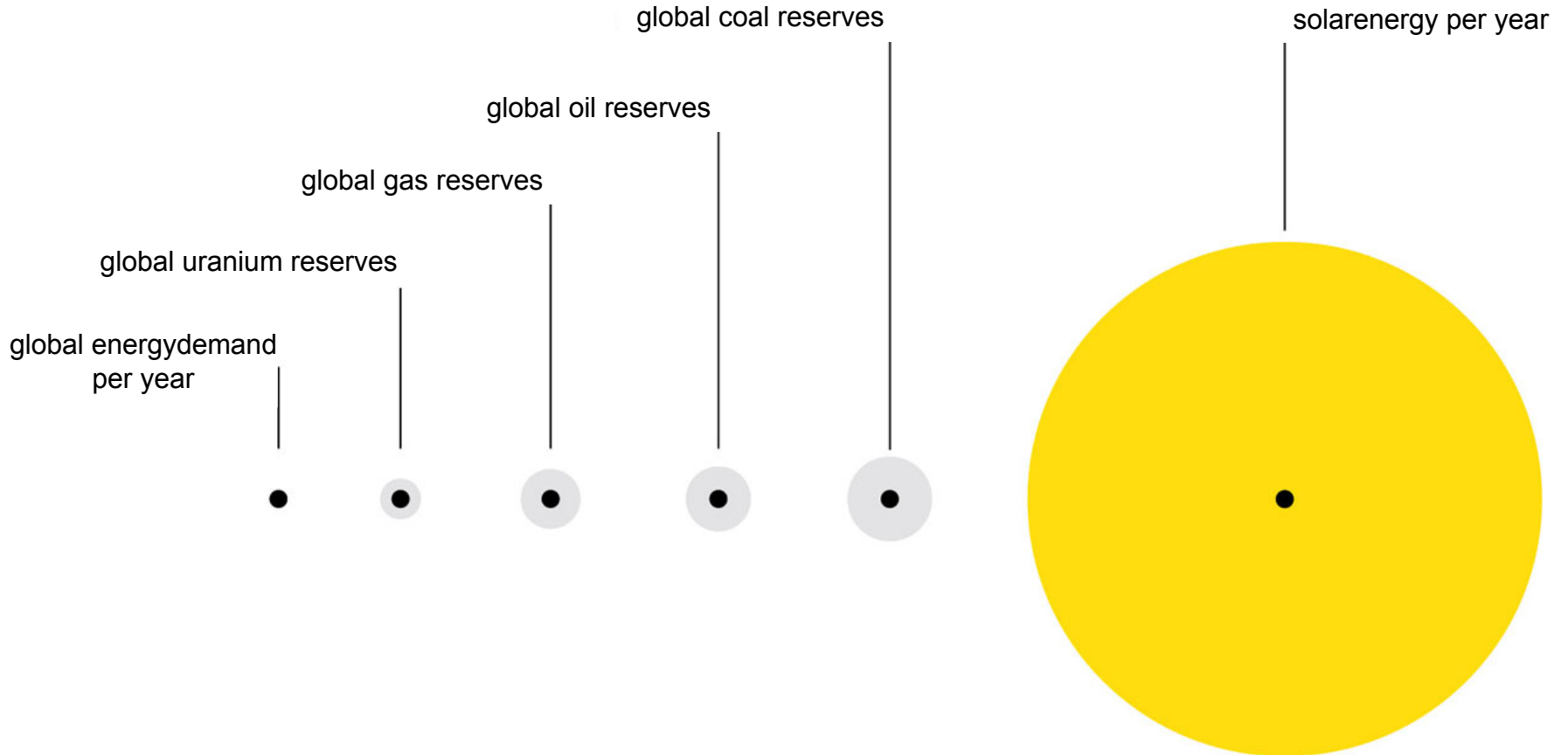
## Solvis business volume from 1988 to 2011.



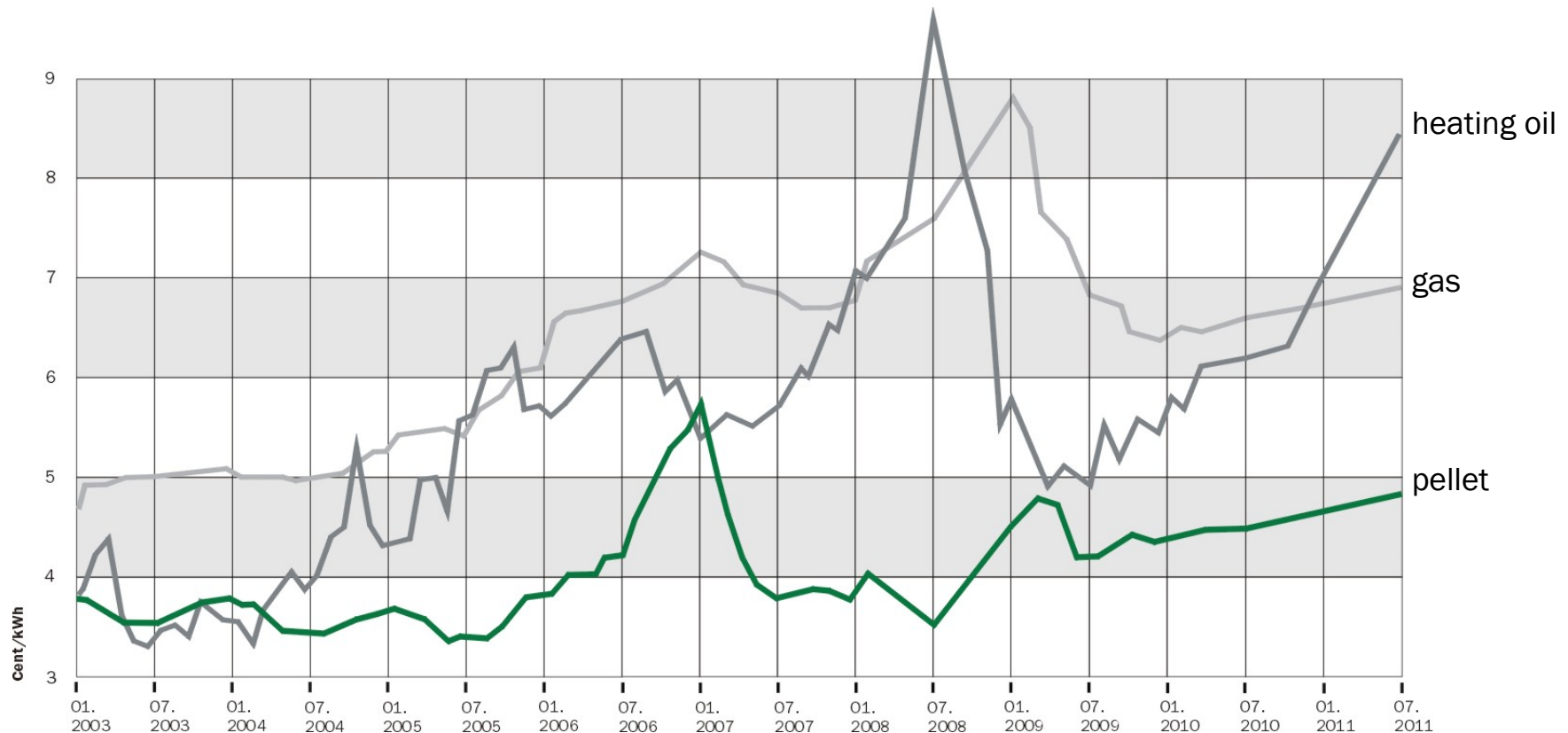
■ sales germany

■ export/OEM

## Global energy reserves.



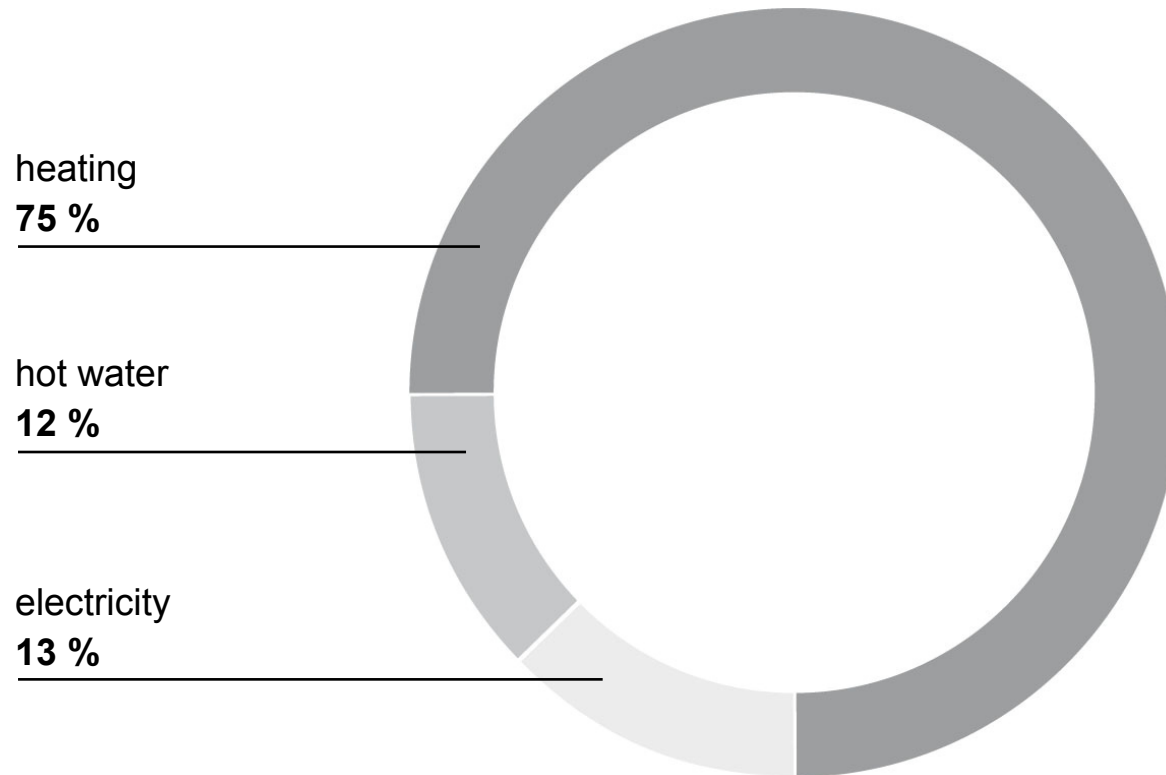
## Price development of different fuels in Germany.



source: Deutscher Energie-Pellet-Verband e.v.



## Energy consumption in a regular domestic home.

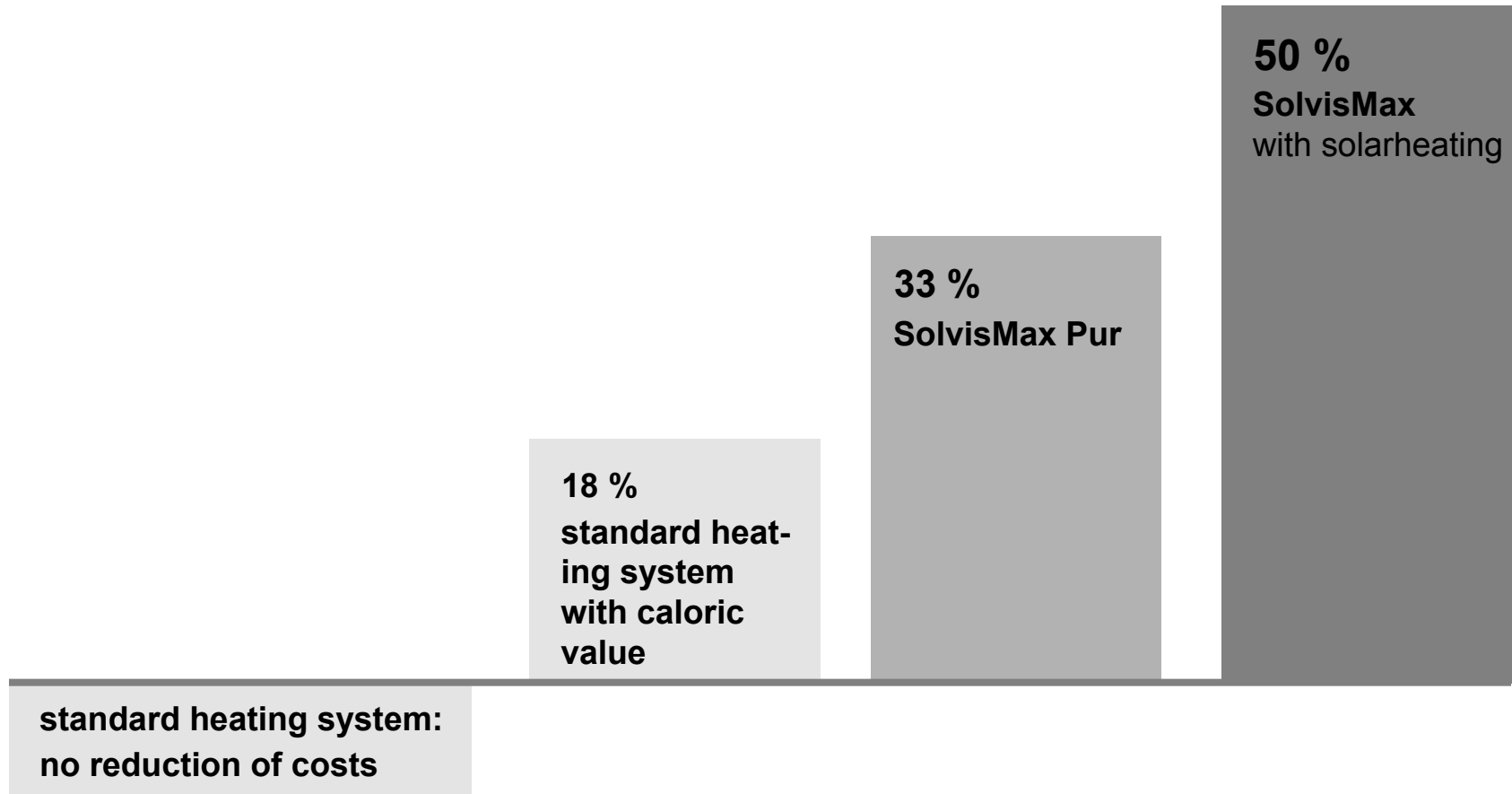


source: dena

## Comparing 1 m<sup>2</sup> solarheating to 1 m<sup>2</sup> photovoltaics.

1 m <sup>2</sup> solarheating	 A blue solar collector panel with a white border, tilted slightly to the right.	ca. 500 kWh/a
		demand for heat: ca. 87%
1 m <sup>2</sup> photovoltaics	 A blue photovoltaic panel with a white grid pattern and a white border, tilted slightly to the left.	ca. 100 kWh/a
		demand for electricity: ca. 13%

## Massive reduction of energy costs.



## An example.



A comment of the customer/owner:  
“The Solvis-partner made us feel secure, we gave ourselves in the best possible hands. I am totally satisfied with the whole project.”

Family home, Salzgitter-  
Gebhardshagen,  
year of construction: 1985

110 m<sup>2</sup>, 4 people

### heating upgrading in 2006:

solarheating SolvisMax gas 650 I,  
2 collectors SolvisFera F-552 (11 m<sup>2</sup>),  
Inside roof-installation

average demand of the old old heating to 2006:

**3.900 m<sup>3</sup> gas**

demand of the new solarheating SolvisMax gas  
(2007):

**1.800 m<sup>3</sup> gas**

**54 % fuel + 54 % CO<sub>2</sub> reduction!**

## Why should we rely on solar energy?

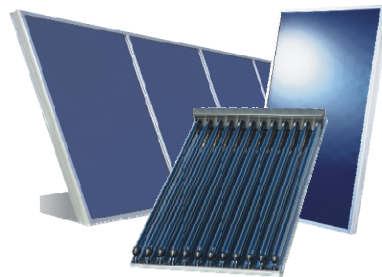
- the largest and the most secure energy source for at least a few billion years.
- clean and for free: no emissions and no hidden costs.
- think local: the energy is used where it is produced.
- no use of imported fossil energy: independence of politics, crisis and rising prices.
- solarheating systems are effective and have a long-life guarantee.
- solar energy creates and secures workplaces.
- increases the value of the property.
- saving resources and the environment.



## The products.



**SolvisMax**



**Solar collectors**



**SolvisLino 3**



**SolvisDirekt and SolvisVital**

## Energy management at it's best.



## The unique flexible system.

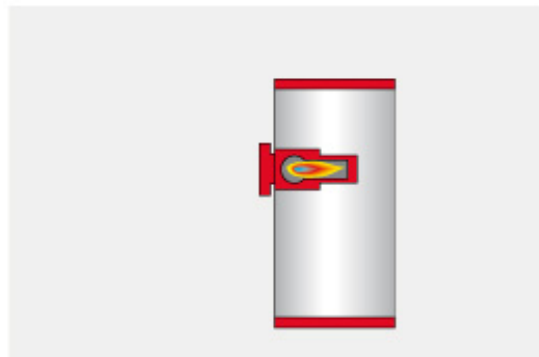
solarheating **SolvisMax**



### the perfect solution.

Start reducing the energy costs dramatically with the Solvis Max solarheating system.

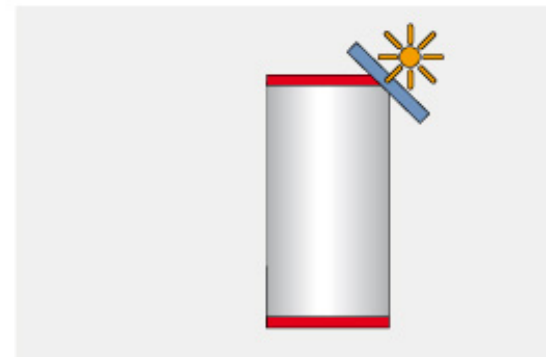
heating **SolvisMax Pur**



### add the collector later.

Get the new heating system first and add the collector later

solarstorage **SolvisMax Futur**

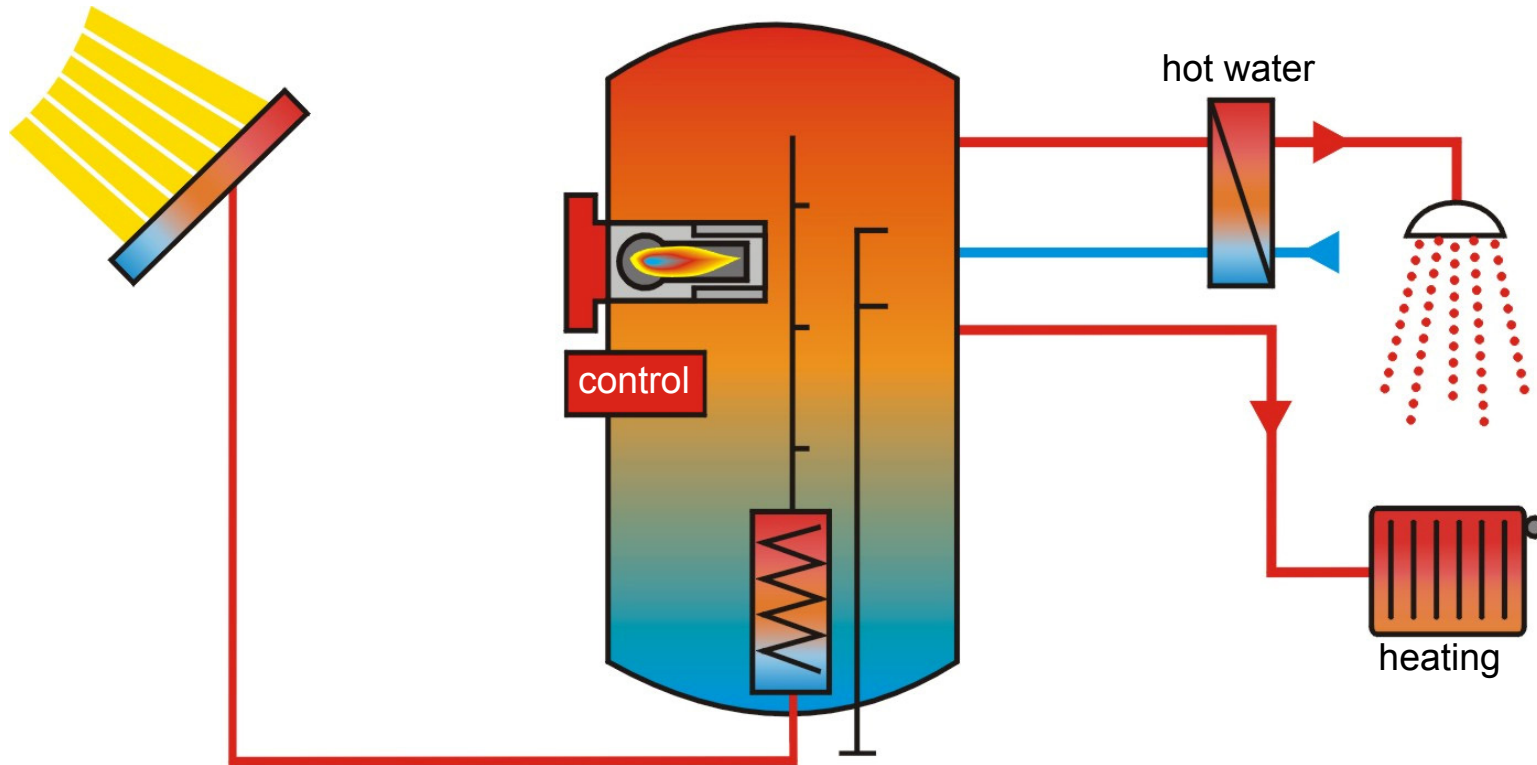


### add the burner later.

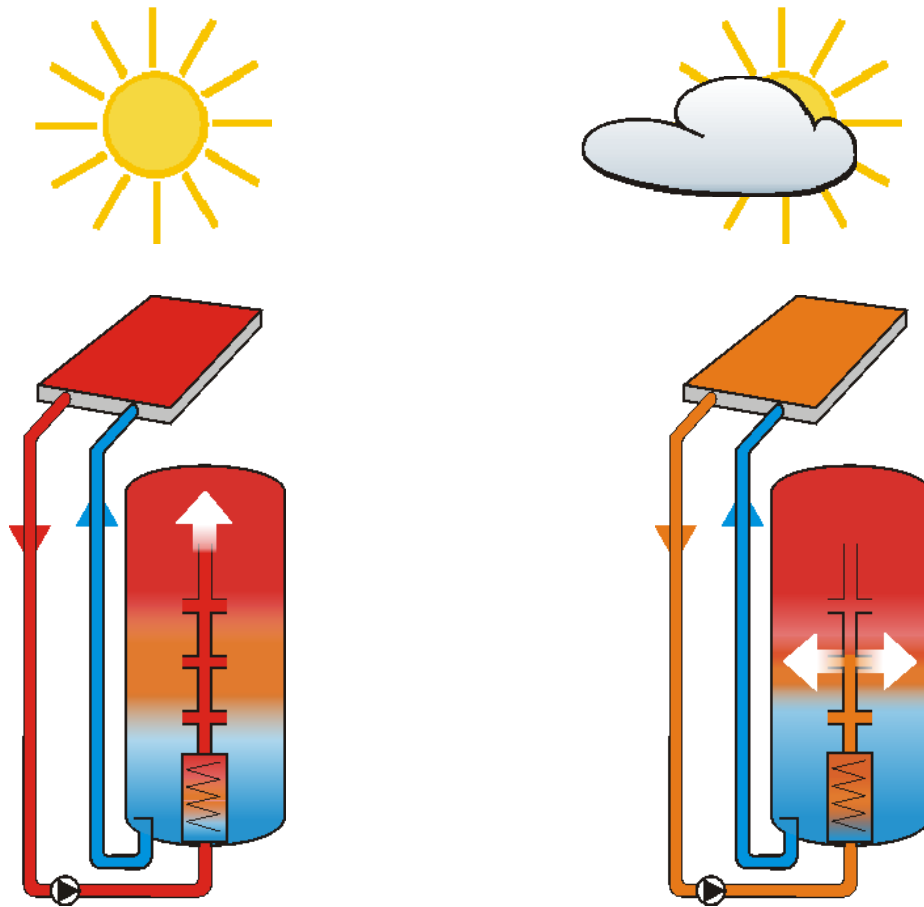
Leave the (old) heating system at work and add the efficient collector. The flexible system allows to integrate a new burner into the storage later.



This is how the system works.



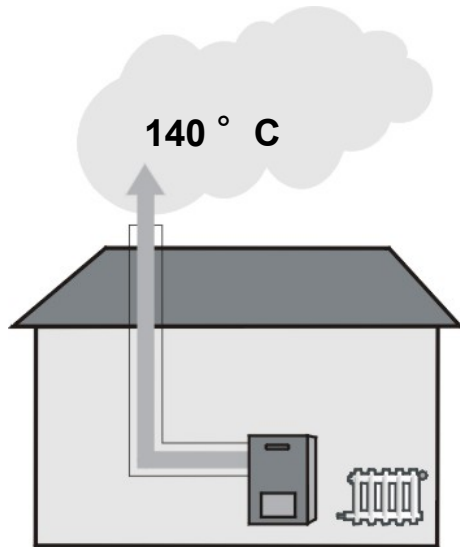
## Stratified storage.



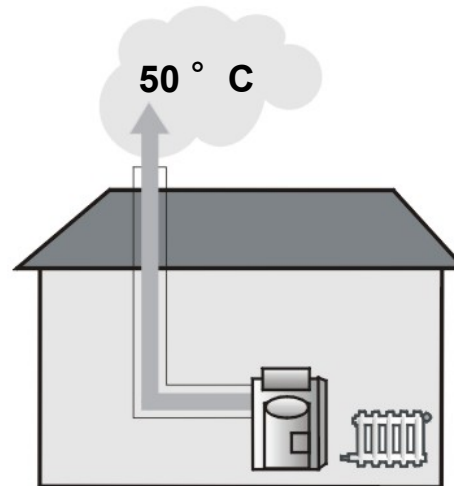
Europatent  
für Solvis-  
Schichtenlader



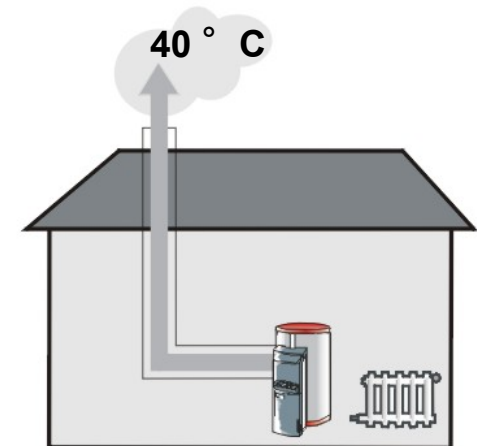
## Caloric value.



**old heating system:**  
annual use efficiency **68 %**  
(incl. water heating at summer operation)



**caloric value heating system:**  
annual use efficiency **92 %**  
(incl. water heating at summer operation)



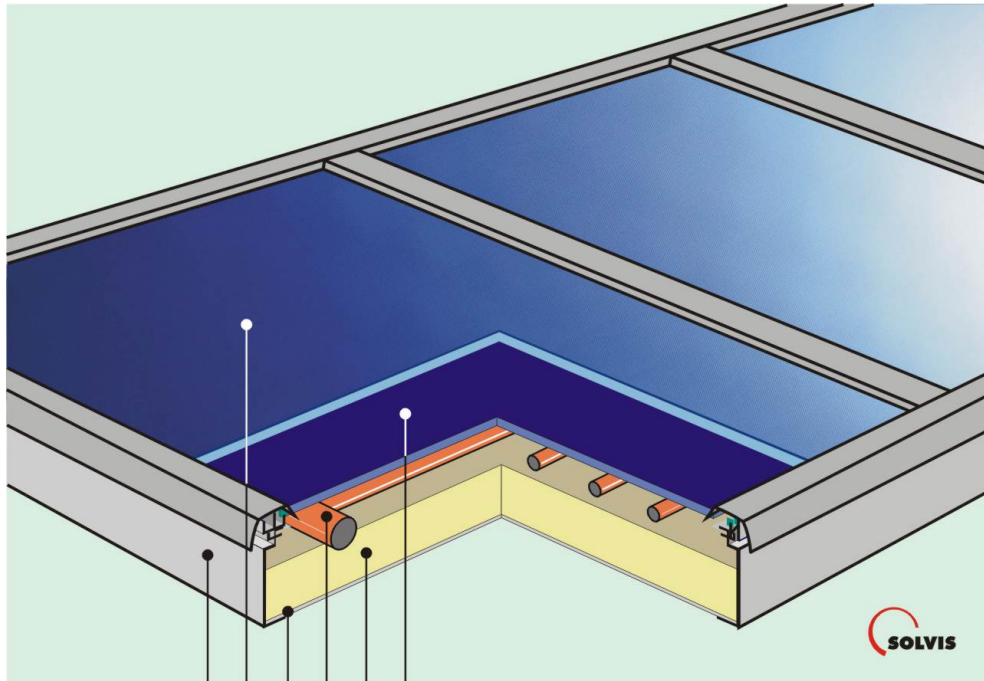
**SolvisMax Gas:**  
annual use efficiency **106 %**  
(incl. water heating at summer operation)

**consumption**  
**4.000 m<sup>3</sup> gas/a.**

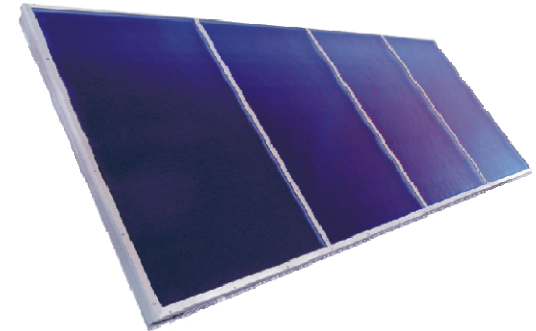
reduced to **3.000 m<sup>3</sup> gas/a.**

reduced to **2.600 m<sup>3</sup> gas/a.**

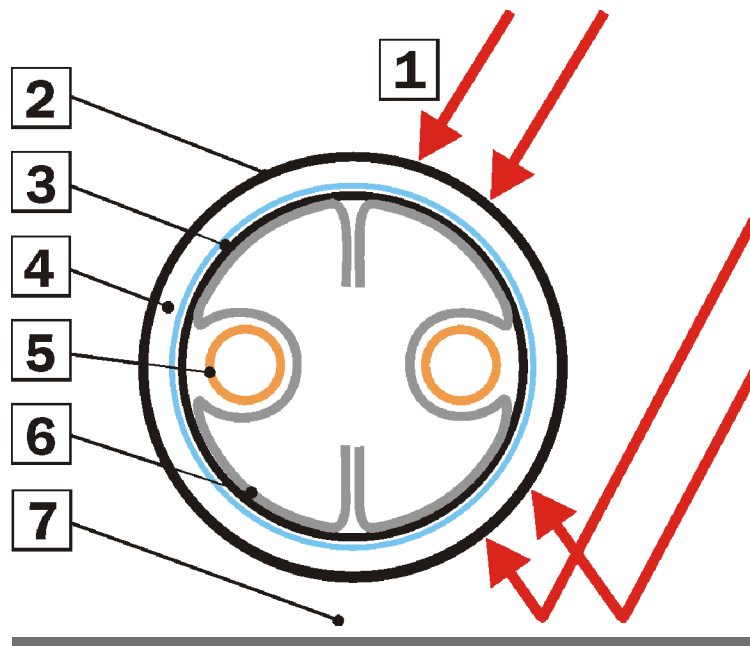
## The assembly of a solarheating collector SolvisFera.



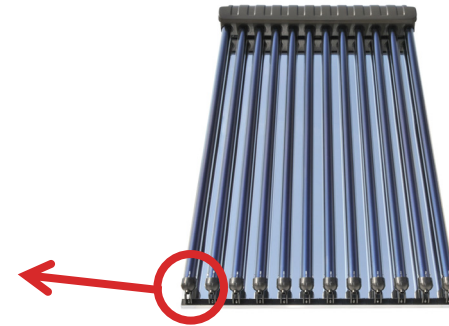
- mirotherm®-absorber
- isolation
- pipe system
- aluminium rear panel
- solar safety glass
- aluminium framework



## Maximum efficiency: evacuated tube collector.



- 1 sunlight
- 2 special glass tube
- 3 high selectiv laminated inner tube
- 4 vacuum
- 5 copper tube
- 6 heat conduction layer (aluminium)
- 7 ceramic laminated mirror



- vacuum for minimal heat loses
- ceramic laminated mirror:  
high efficiency and weather resistant
- up to 25% more earnings compared  
to a plain collector

## The compact collector SolvisCala.





## SolvisFera in Geesthacht near Hamburg.



## Join the Solvis family.

### Bachelor and master assignments

#### these are the assignment offerings:

- large solar/heating plants
- SolvisMax heat pump
- collector development/sun simulation
- SolvisMax pellet
- solar cooling Solare Kühlung
- Development and improvement SolvisMax

#### what we are looking for:

- you already passed most of you exams
- Aim of your Studies: energy or mechanical engineering
- six month time for you assignment
- you are adepted at working with your hands

#### what we offer you:

- individual assistance
- self dependent workingeigenverantwortliches Arbeiten
- volle Einbindung in die Arbeitsprozesse
- Solvis payment

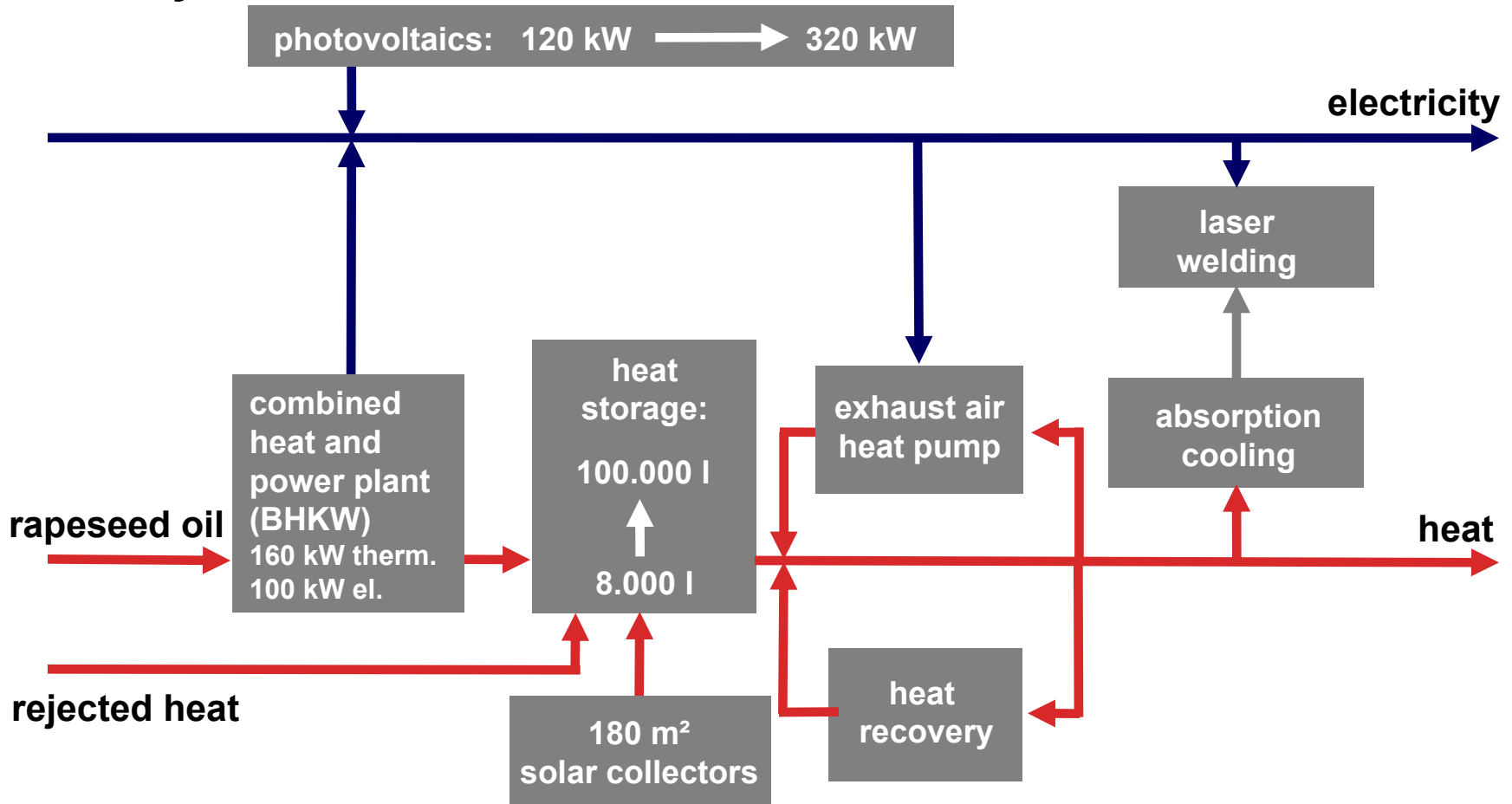


**Zero emission factory.**



The new heating.

# Upgrade a zero emission factory to a solar energy factory.



Thank you for your attention.

 <p><b>DGS-ISES SOLARPREIS 1998</b></p> <p>SolvisMax: „herausragendes technisches Solarprodukt“</p>	 <p><b>IEA INTERNATIONAL ENERGY AGENCY</b></p> <p>Tas k.26 Solar Combisystems 12.2002 <b>SolvisMax Gas:</b> » Mit Abstand bestes europäisches Solar-Heizsystem«</p>	 <p><b>Stiftung Warentest</b></p> <p>GUT (1,8) SolvisMax Gas <b>Test- sieger</b> Ausgabe 3/2009</p>	 <p><b>STIFTUNG WARENTEST</b></p> <p>Im Test: SOLVIS F 50 / Stratos Integral: <b>Gute Anlage mit gelungenem Anlagenkonzept</b></p> <p>Unwettbewerbsfähiger: <b>sehr gut</b> mit Abstand <b>Höchster Warmwasserkomfort</b></p>	 <p><b>Solar Energy Research Center</b></p> <p>Im Test: 10 Solar-Pufferspeicher Beurteilung: SOLVIS <b>StratosIntegral</b> mit Abstand <b>Bester Speicher</b> Dalarna University-Sweden</p>
 <p>Energy Globe Award 2003</p>	 <p><b>ENERGY+ AWARD 2008</b></p> <p>Europas energieeffizientestes Heizsystem mit dem geringsten Stromverbrauch</p>	 <p><b>ÖKO-TEST</b> RICHTIG GUT LEBEN</p> <p><b>TESTSIEGER</b> SolvisMax SX-756 Kombi-Solaranlage mit integriertem Heizkessel <b>sehr gut</b> Öko-Test Magazin 10/2010 Im Test: 17 Kombi-Solaranlagen</p>	 <p><b>ÖKO-TEST</b> RICHTIG GUT LEBEN</p> <p>SolvisFera F-652-I Bester Flachkollektor im Test <b>sehr gut</b> Öko-Test Magazin 10/2010 Im Test: 17 Kombi-Solaranlagen</p>	 <p><b>ÖKO-TEST</b></p> <p>Flachkollektor Solvis F60 Tinox Bauartgleich mit F25 - F75 <b>Empfehlenswert</b></p> <p><b>ÖKO-HAUS</b> Ausgabe 3/99 Preis-Leistungs-Verhältnis: Empfehlenswert</p>
 <p>Energy Globe Award 2003</p>	 <p>Europäischer Solarpreis 2002</p>	 <p><b>markt intern</b> www.marktintern.de</p> <p><b>SOLVIS GmbH &amp; Co KG</b> "Solaranlagen" <b>1. Platz</b> Bewertung durch Heizungs-Fachhandwerker 03/2009</p>	 <p><b>ÖKO-TEST</b></p> <p>Solar-Brennwertbessel <b>SolvisMax SX 404</b> Bauartgleich mit SX 504-SX 754 <b>Empfehlenswert</b></p> <p><b>ÖKO-HAUS</b> Ausgabe 4/98 Im Test: 30 Produkte davon: 14 Empfehlenswert</p>	 <p><b>ÖKO-TEST</b></p> <p>Solar-Brennwertbessel <b>SolvisMax SX-355</b> Bauartgleich mit SX-455 - SX-1455 <b>Empfehlenswert</b></p> <p><b>ÖKO-TEST</b> Sonderheft 32, Ausgabe 11/00 Im Test: 21 Produkte davon: 14 Empfehlenswert</p>