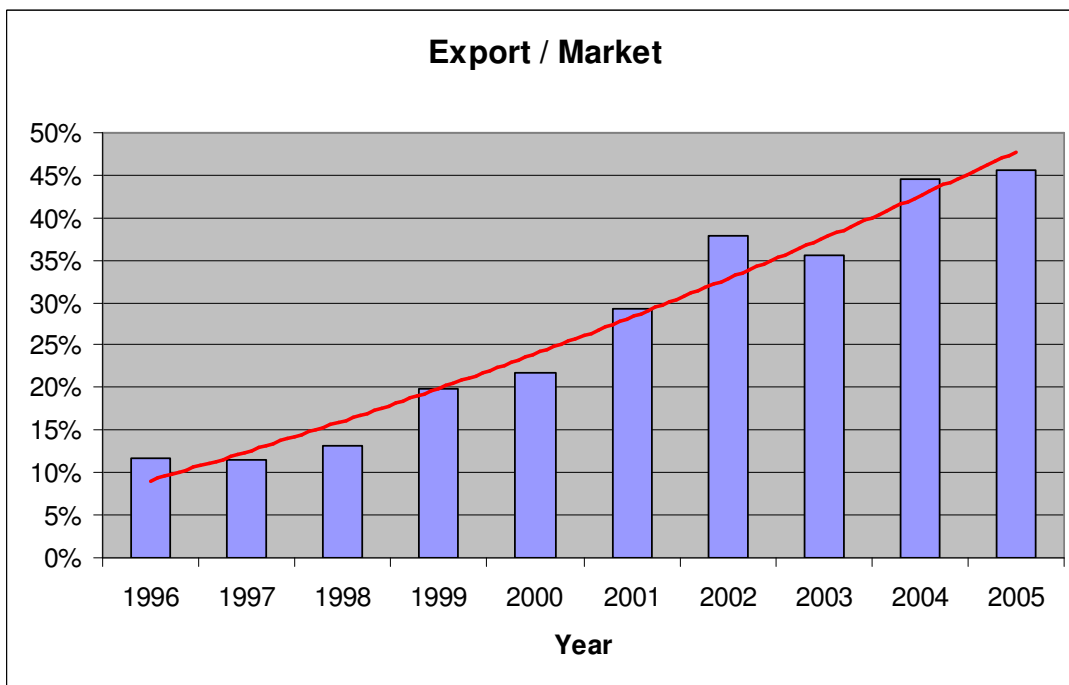


European Trade of Solar Thermal Products



December, 2007
J.E. Nielsen, SolarKey Int.

Project: SolarKeymark-II

Intelligent Energy  Europe

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0. Summary

The size of the import/export of solar collectors in Europe has been investigated. The investigation based on data from 90% of the EU market shows a considerable and increasing trans-national trade of collectors across the borders in Europe:

- **30-50% of all glazed collectors are crossing the borders**
- **The cross border trade is increasing.**

1. Introduction

Only collectors are treated in this draft document – from the responses on the questionnaire (ANNEX A) it was clear that collectors are by far the most “border crossing” product. However the imports/exports of controllers and tanks are increasing also rapidly lately.

2. Data

The data used for this analysis origin from the following sources:

- A. Sun in Action II – A Solar Thermal Strategy for Europe, ESTIF, 2003
- B. Solar Thermal Markets In Europe (Trends and Market Statistics 2003), ESTIF, June 2004
- C. Solar Thermal Markets In Europe (Trends and Market Statistics 2004), ESTIF, June 2005
- D. Solar Thermal Markets In Europe (Trends and Market Statistics 2005), ESTIF, June 2006
- E. Responses on questionnaire sent out to national solar thermal associations and project participants (ANNEX A)

This document built on responses from the following 10 countries representing approx. 90% of the EU collector market:

- | | | | |
|-------------------------------|--------------------------------|-----------------------------------|-----------------------------|
| <input type="radio"/> Austria | <input type="radio"/> Greece | <input type="radio"/> Switzerland | <input type="radio"/> Spain |
| <input type="radio"/> Denmark | <input type="radio"/> Portugal | <input type="radio"/> France | |
| <input type="radio"/> Germany | <input type="radio"/> Sweden | <input type="radio"/> Italy | |

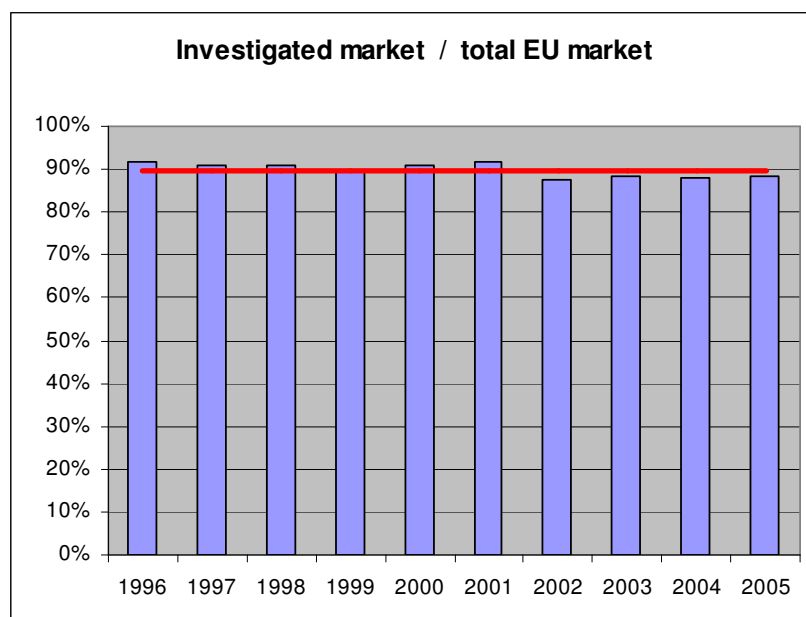


Figure 1. Share of the market included in the analysis.

	Market (=Newly Installed) - total glazed m ²										Included in the analysis
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
AT	186 800	182 340	165 664	141 148	152 944	160 080	153 050	166 920	182 594	233 470	x
BE	1 200	1 400	1 716	2 282	3 230	4 481	4 943	9 047	14 700	20 234	
CH	12 000	14 000	16 000	18 000	20 000	22 730	26 431	26 820	31 067	39 132	x
CY	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	50 000	
CZ	1 000	1 000	1 000	1 000	1 000	1 000	3 000	10 200	12 250	15 550	
DE	269 000	330 000	350 000	420 000	620 000	900 000	540 000	720 000	750 000	950 000	x
DK	39 740	23 750	22 460	25 200	30 200	26 150	13 000	19 000	20 000	22 000	x
EE	0	0	0	0	0	0	50	150	250	250	
ES	10 600	12 677	16 400	21 582	40 487	46 357	66 000	70 000	90 000	106 800	x
FI	600	800	800	1 000	1 010	1 110	1 110	2 000	2 000	2 000	
FR-met	3 500	3 500	3 500	3 500	3 600	12 000	27 000	38 900	52 000	121 500	x
GR	185 000	197 300	233 400	185 000	181 000	175 000	152 000	161 000	215 000	220 500	x
HU	500	500	500	500	500	500	500	1 000	1 500	1 000	
IE	1 290	1 290	395	1 000	380	270	875	1 200	2 000	3 500	
IT	17 245	29 840	33 015	35 500	45 249	44 500	45 000	50 000	58 000	72 000	x
LT	100	100	100	100	100	100	300	400	500	500	
LU	0	0	0	300	600	900	1 200	1 500	1 700	1 900	
LV	100	100	100	100	100	100	300	400	500	1 000	
MT	0	0	0	0	500	2 000	2 500	3 000	4 215	4 000	
NL	16 917	24 345	24 837	28 121	27 661	30 537	30 000	27 686	26 300	20 248	
PL	-6 000	-2 000	2 000	6 000	10 000	14 000	18 000	26 220	33 000	35 000	
PT	4 500	4 500	4 500	4 500	5 500	6 000	5 500	6 000	10 000	16 000	x
SE	11 169	12 600	7 269	9 502	19 117	21 970	15 260	19 255	20 058	22 621	x
SI	0	0	0	500	500	1 000	1 200	1 100	1 800	2 000	
SK	0	0	0	0	2 000	4 000	4 500	5 000	5 500	7 500	
UK	8 200	8 200	8 200	9 480	11 850	15 230	17 500	22 000	25 000	28 000	
SUM ALL	793,461	876,242	921,856	944,315	1,207,528	1,520,015	1,159,219	1,418,798	1,589,934	1,996,705	12,428,073
SUM INCL	727 554	796 507	836 208	845 932	1 098 097	1 392 057	1 016 810	1 251 075	1 397 652	1 764 891	11 126 783
INCL/ALL	92%	91%	91%	90%	91%	92%	88%	88%	88%	88%	90%

Table 1. National markets in Europe – Annual sale of glazed collectors (flat plate plus evacuate tube)s. Grey fields indicate that numbers are estimated by the author.

Annual export - total glazed m ²										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
AT	32 700	28 746	42 165	64 833	115 026	250 847	200 000	232 900	319 950	440 210
BE										
CH	0	0	0	0	0	5 000	10 000	15 200	41 030	50 952
CY										
CZ										
DE	5 000	9 000	1 500	24 000	35 000	45 000	55 000	70 000	90 000	120 000
DK	0	0	0	200	700	850	1 000	1 500	2 000	2 000
EE										
ES	0	0	0	0	0	0	0	0	0	0
FI										
FR-met	0	0	0	1 000	2 000	3 000	4 000	5 800	4 200	4 900
GR	25 964	30 964	35 964	40 964	45 964	50 964	55 964	60 964	64 321	77 175
HU										
IE										
IT	0	0	0	0	0	500	1 000	2 000	5 000	8 000
LT										
LU										
LV										
MT										
NL										
PL										
PT	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0
SI										
SK										
UK										
MARKET	542 554	599 207	602 808	660 932	917 097	1 217 057	864 810	1 090 075	1 182 652	1 544 391
EXPORT	63 664	68 710	79 629	130 997	198 690	356 161	326 964	388 364	526 501	703 237
EXP/MAR	12%	11%	13%	20%	22%	29%	38%	36%	45%	46%

Table 2. National exports in Europe – Annual export of glazed collectors (flat plate plus evacuated tubes). Grey fields indicate that numbers are estimated by the author.

Annual import - total glazed m ²										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
AT	26 900	13 270	10 324	8 585	5 519	2 966	4 000	4 920	9 844	10 270
BE										
CH	0	0	0	1 000	2 000	3 000	4 000	5 862	7 627	13 526
CY										
CZ										
DE	142 000	187 000	135 500	173 000	276 000	300 000	200 000	270 000	300 000	350 000
DK	0	0	0	200	700	850	1 000	1 500	2 000	2 500
EE										
ES	7 155	8 557	11 070	14 568	27 329	31 291	44 550	47 250	60 750	72 090
FI										
FR-met	765	765	765	765	787	2 622	5 900	8 500	19 700	65 800
GR	4 000	4 500	5 000	5 500	6 000	6 500	7 000	7 500	7 900	13 500
HU										
IE										
IT	7 000	8 000	9 200	10 000	12 000	15 000	28 000	33 000	35 000	42 000
LT										
LU										
LV										
MT										
NL										
PL										
PT	1 500	1 500	1 500	1 700	1 500	2 000	2 500	3 000	5 500	8 000
SE	2 000	2 300	1 915	1 405	6 702	8 052	6 200	4 467	6 868	11 423
SI										
SK										
UK										
MARKET	542 554	599 207	602 808	660 932	917 097	1 217 057	864 810	1 090 075	1 182 652	1 544 391
EXPORT	191 320	225 892	175 274	216 723	338 536	372 281	303 150	385 999	455 189	589 109
EXP/MAR	35%	38%	29%	33%	37%	31%	35%	35%	38%	38%

Table 3. National imports in Europe – Annual import of glazed collectors (flat plate plus evacuated tubes). Grey fields indicate that numbers are estimated by the author.

3. Country by country

The developments in the analysed countries are shown in the following. The figures show together the national market, the import and the export.

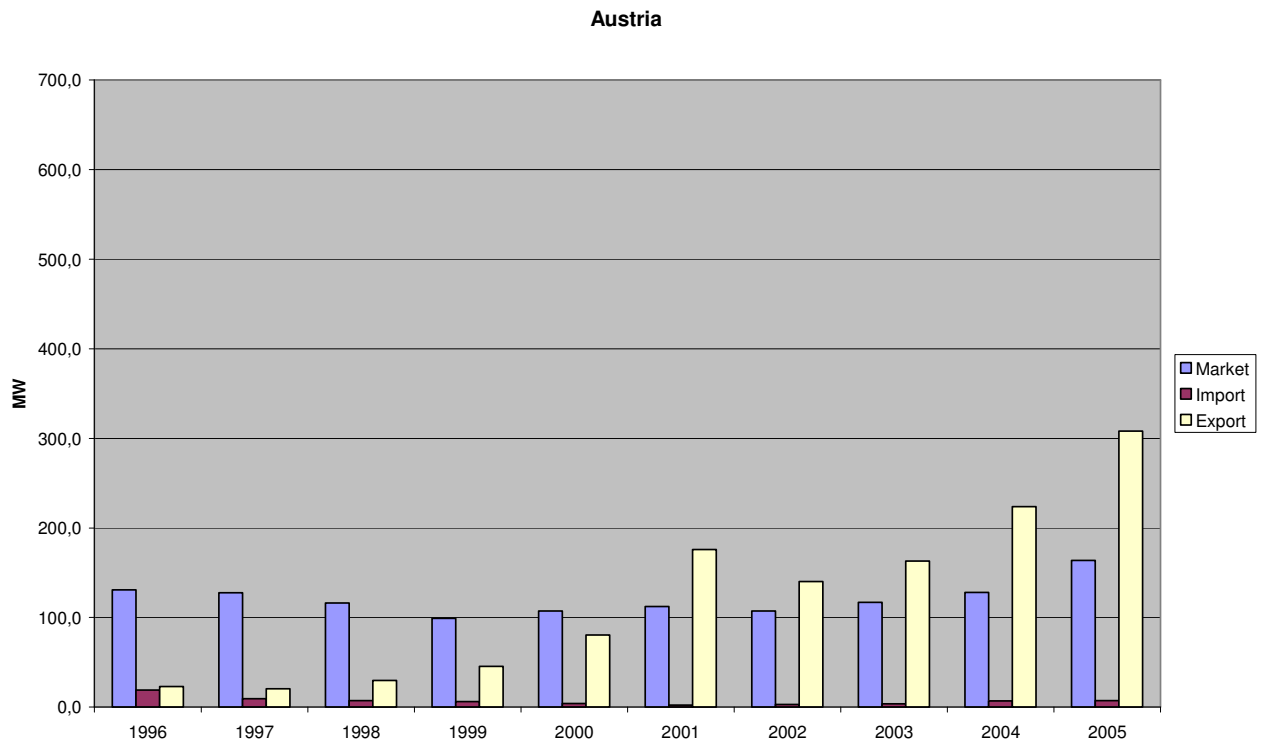


Figure 2a. National market, import and export in MW – Austria

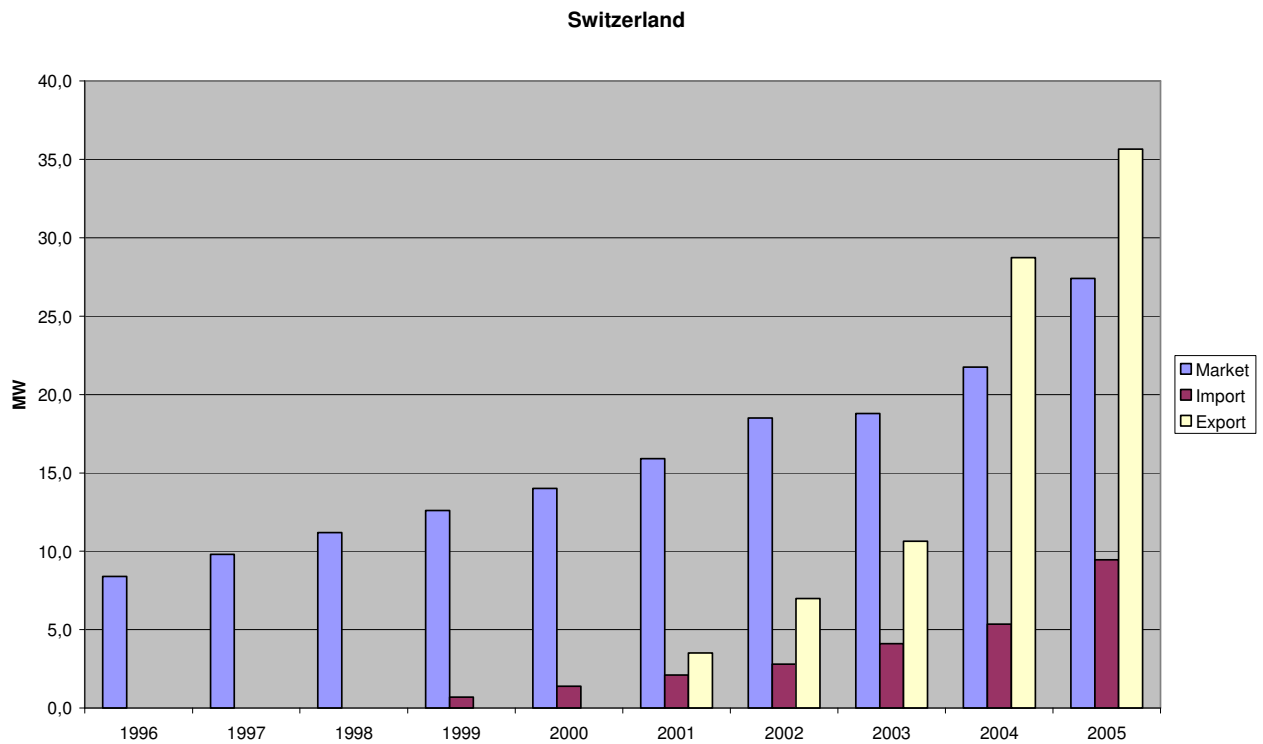


Figure 2b. National market, import and export in MW - Switzerland

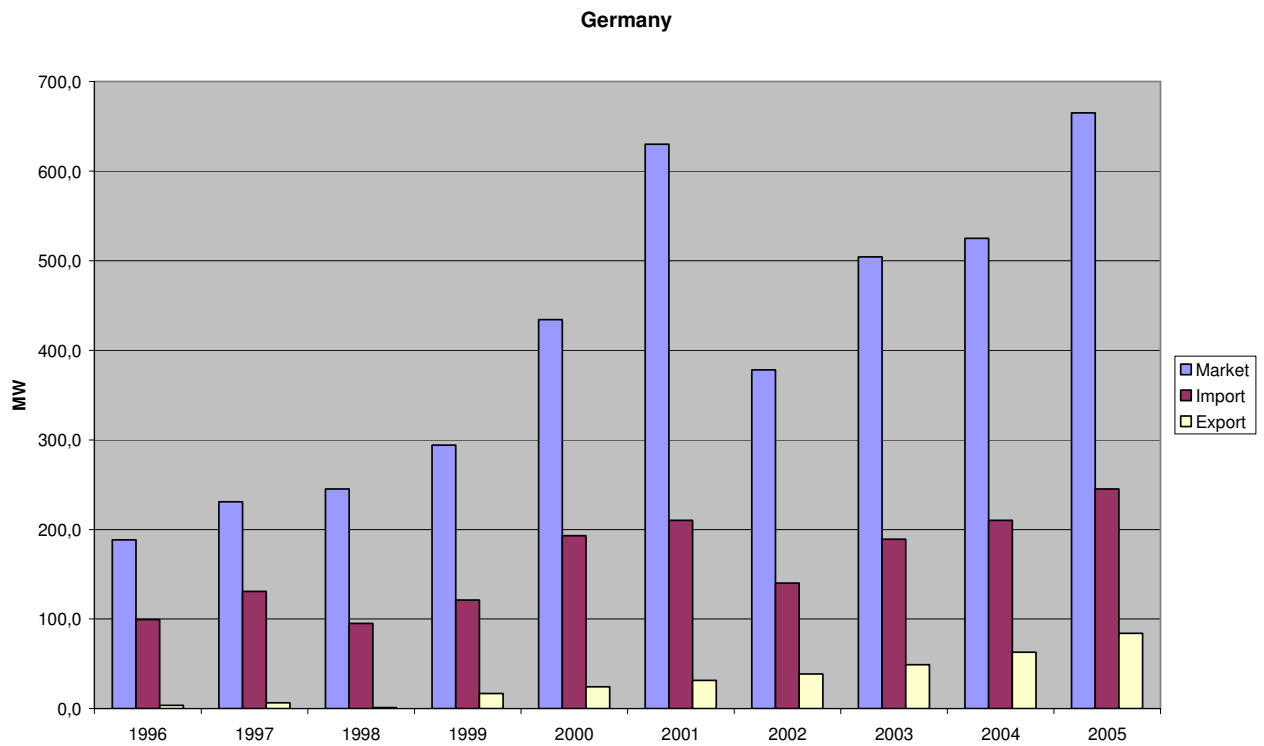


Figure 2c. National market, import and export in MW - Germany

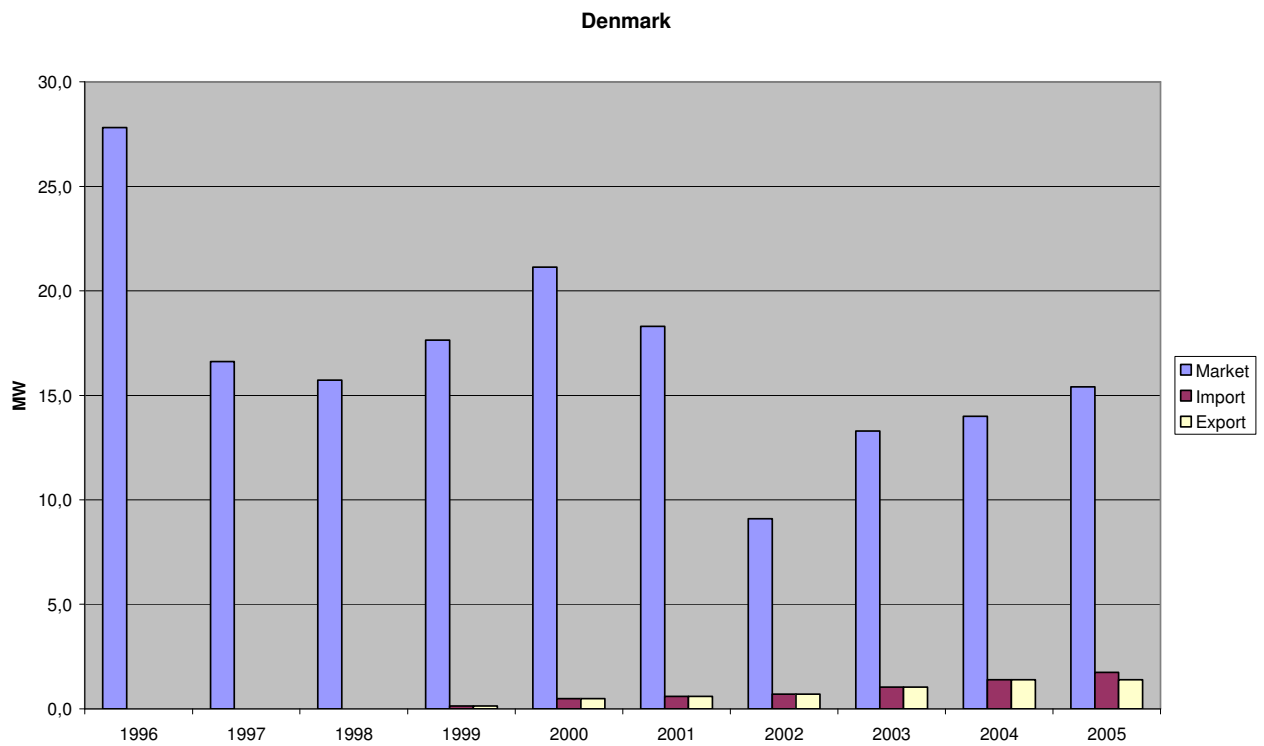


Figure 2d. National market, import and export in MW - Denmark

Spain

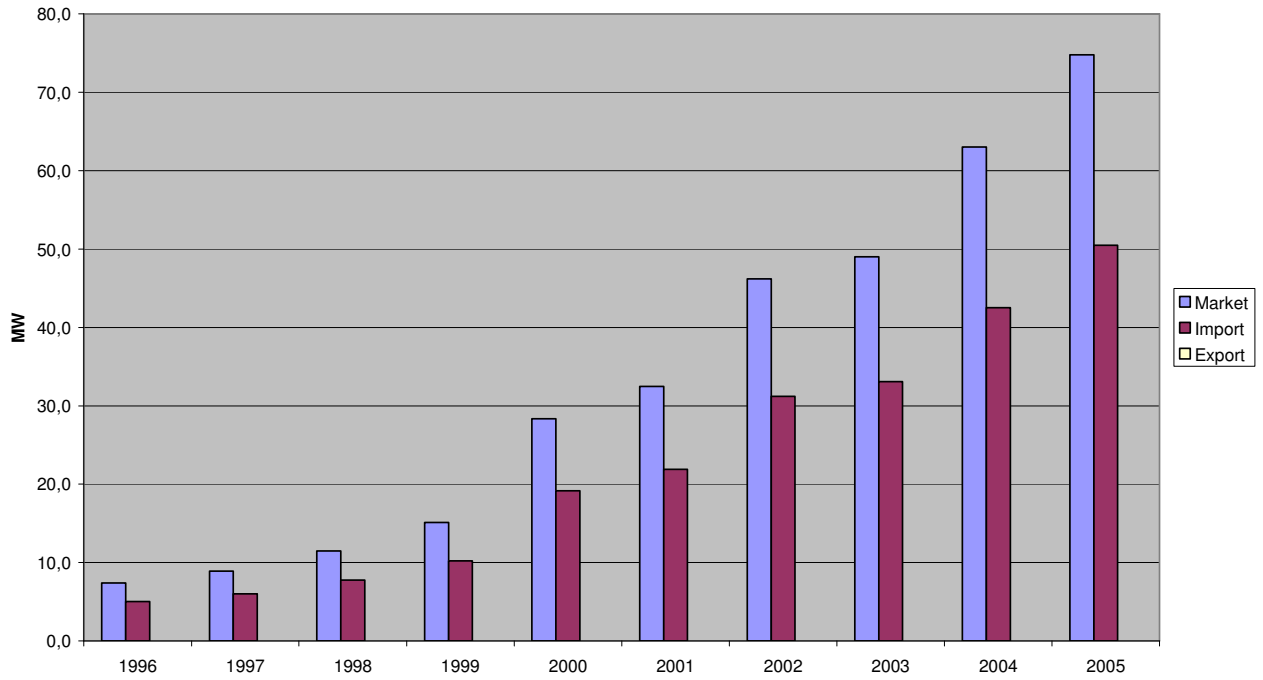


Figure 2e. National market, import and export in MW – Spain. Import data estimated – no export.

France

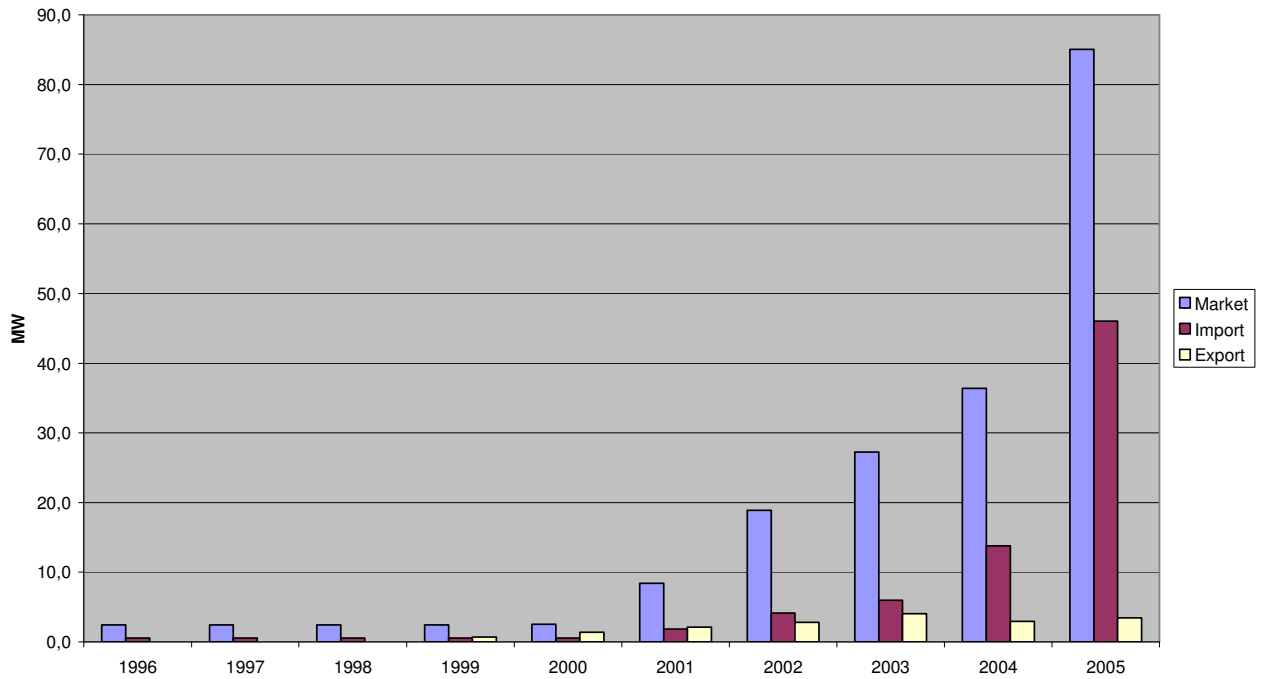
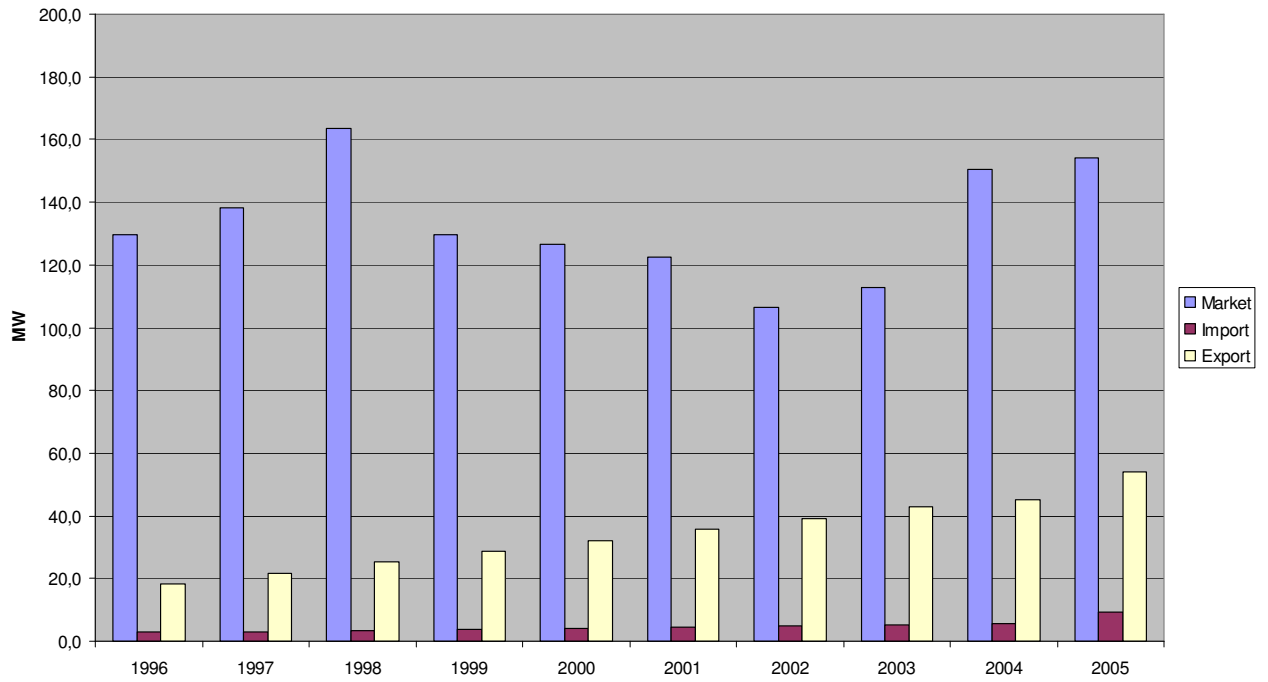


Figure 2f. National market, import and export in MW – France.

Greece



Italy

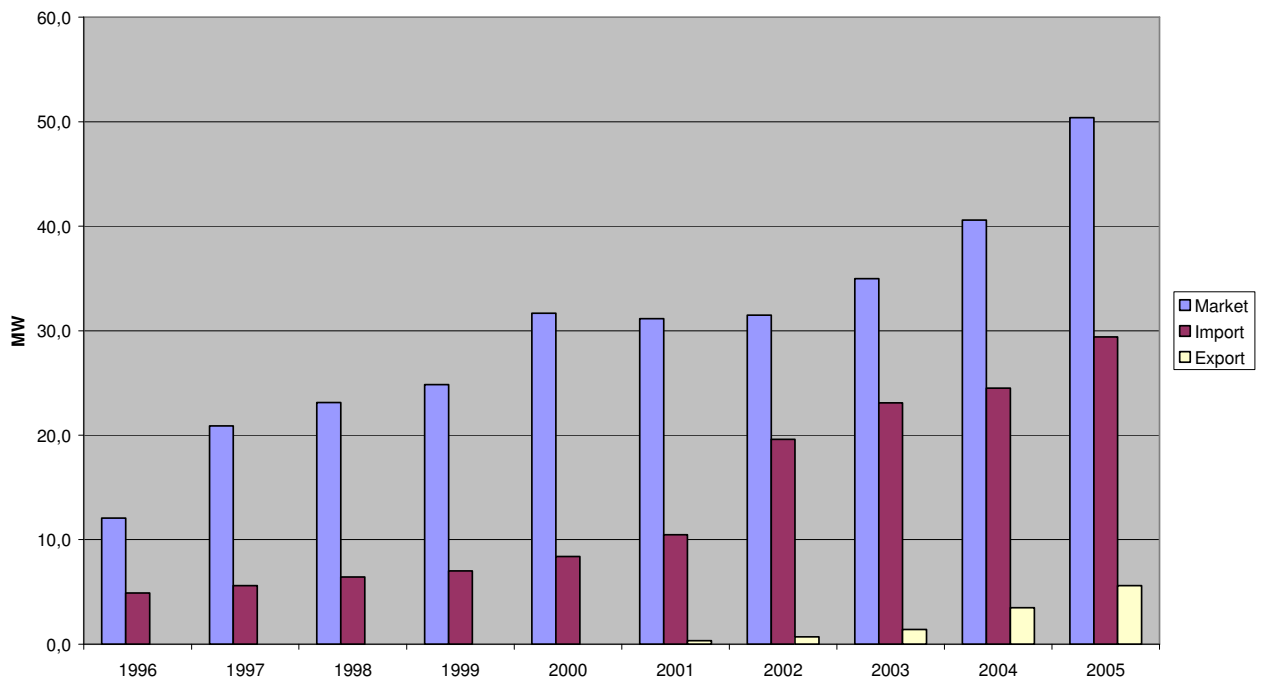


Figure 2g. National market, import and export in MW – Italy.

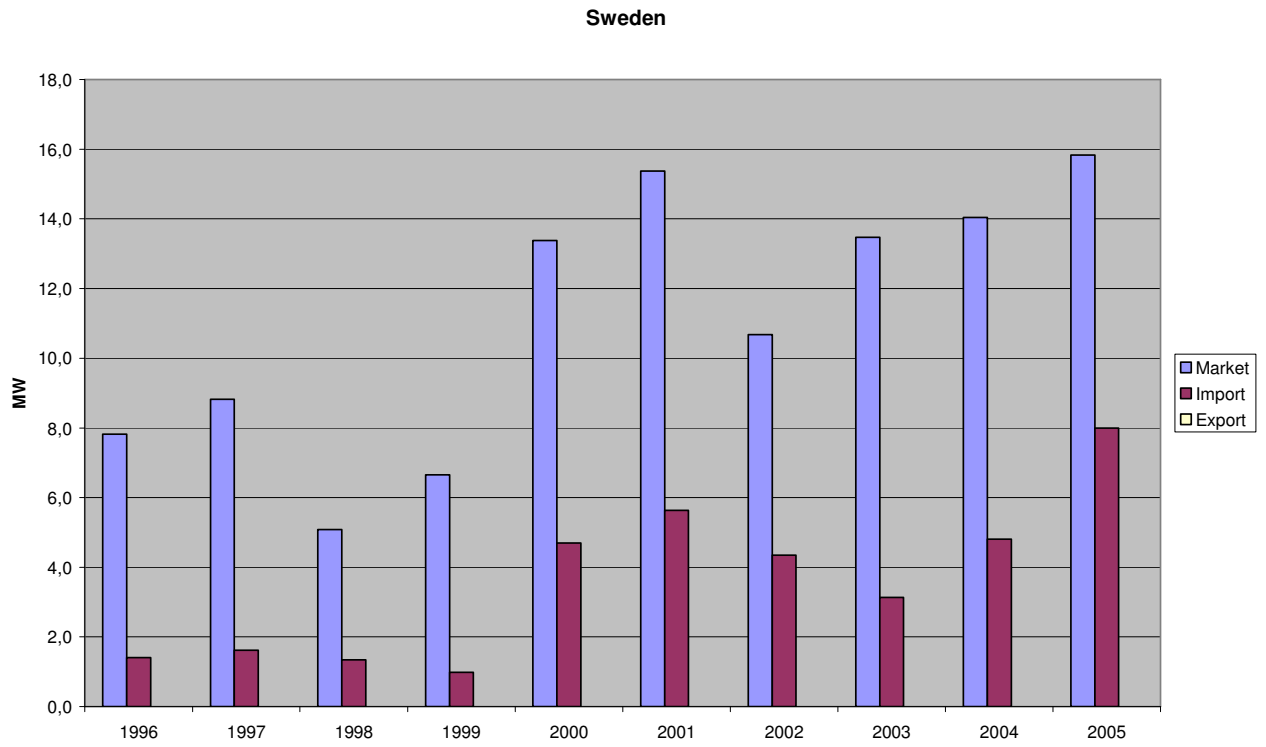


Figure 2h. National market, import and export in MW – Sweden.

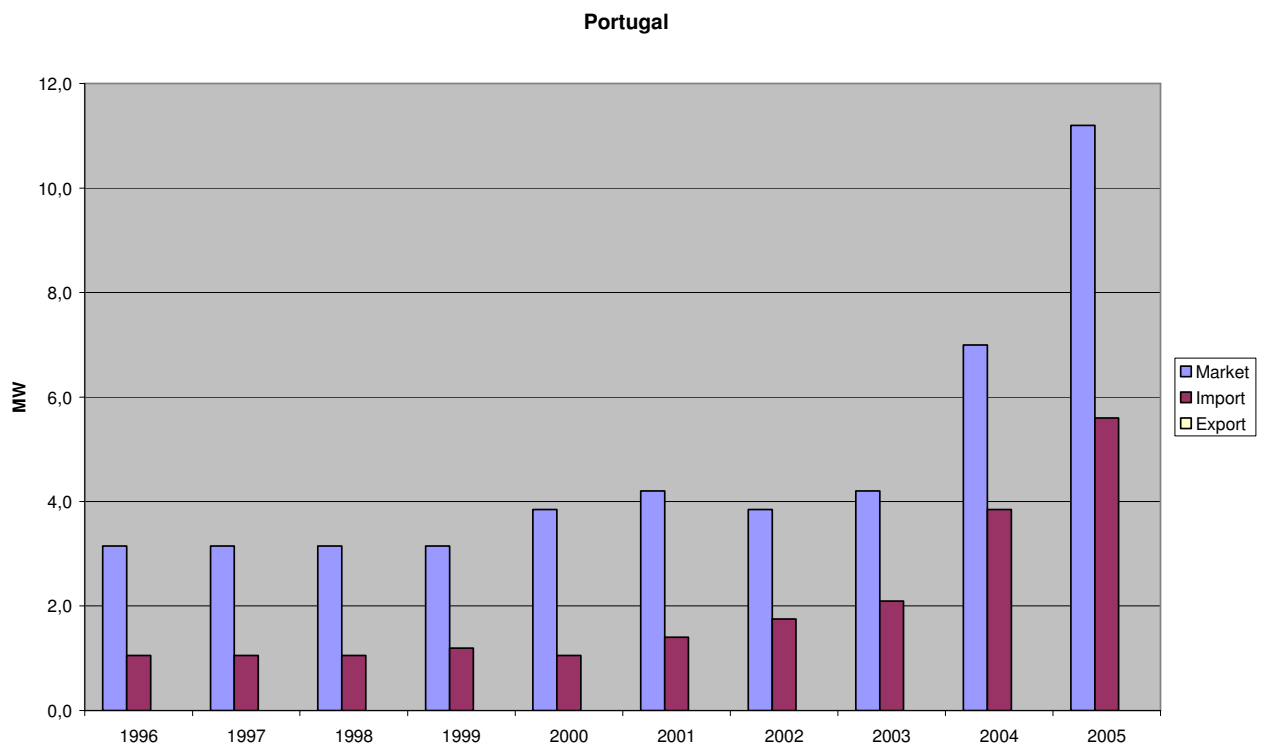


Figure 2i. National market, import and export in MW – Portugal.

It is noticed from the figures:

- Austria has a very good position on the European market – exporting 300 MW in 2005 (almost double of the Austrian home market) – Austria is the “big exporter”
- Germany is second to none the biggest market in Europe – and now the German industry is also gaining a good position on the European market exporting almost 100 MW in 2005 – but Germany is still the “big importer” (250 MW)
- The “new fast growing markets” in Europe: France, Spain and Italy are importing most of their collectors
- Despite the small home market, the Swiss industry has managed to establish a substantial export (larger than the home market)
- The Danish market is only one with a decreasing trend in the period (it seems that the Danish collector manufacturers has missed their chance in the mid 90’ties to develop the export markets)

4. General trends

The general trends are shown in fig. 3 & 4:

- The general trend is that the markets, the exports and the imports are all increasing
- Export is growing very fast also in relative numbers (from 10% to 45% the last 10 years)
- Approx. 1/3 of all collectors in the investigated countries are imported. This relative figure is almost constant the last 10 years when looking overall on Europe.

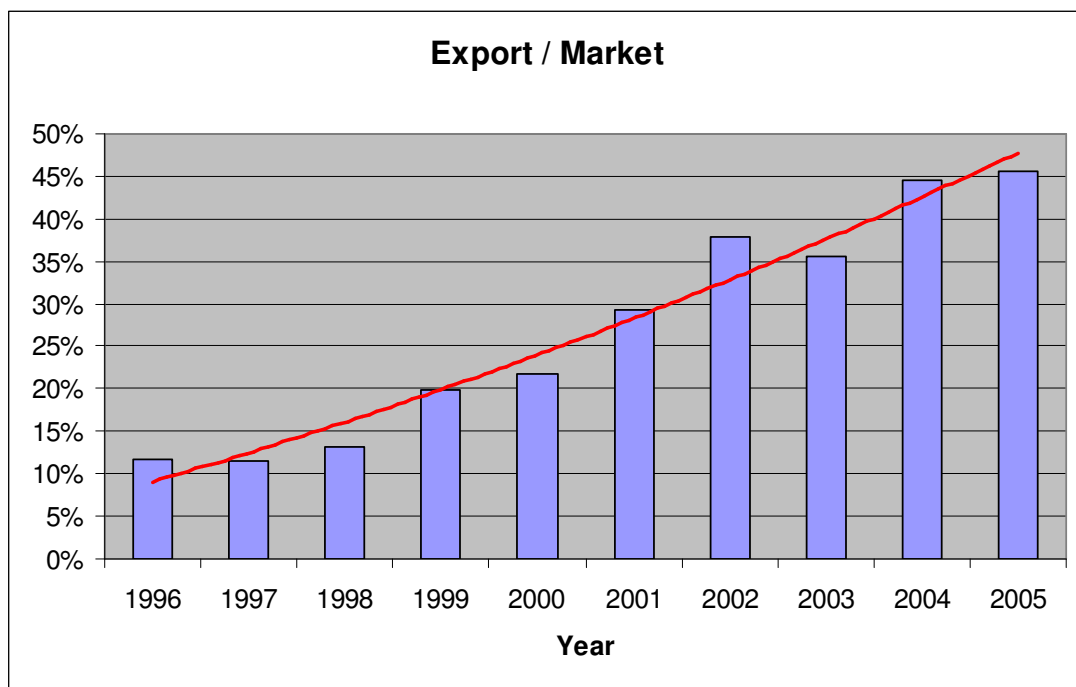


Figure 3. Exported collectors / collector market. Red line: Trend

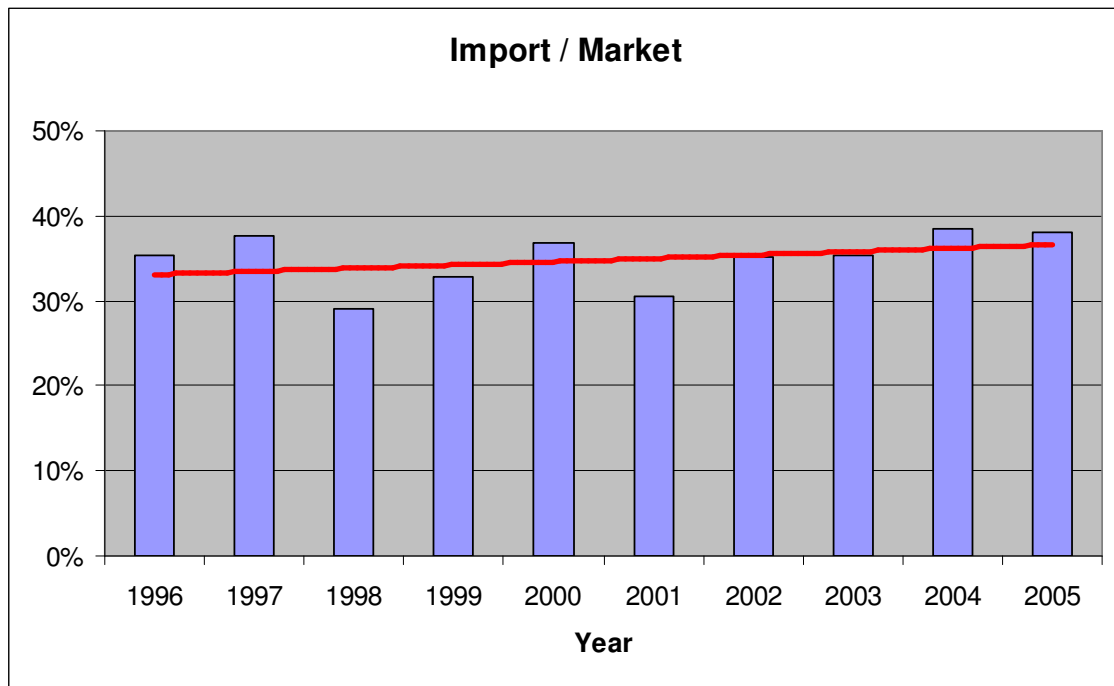


Figure 4. Imported collectors / collector market. Red line: Average (34%)

5. Conclusions

- There is a considerable trans-national trade of collectors across the borders in Europe – about 1/3 of all glazed collectors are crossing the borders !
- The cross border trade is increasing also in relative numbers

ANNEX A- Responses to questionnaire

Questionnaire for cross border trade of solar thermal products						
Name of person filling out the table:		Roger Hackstock, Austria Solar				
Country:		Austria				
Date:		02-05-2006				
			2003	2004	2005	Most important import/export country **
Import	Glazed collectors *	m ² /year	4920	9844	10270	Germany, China
	Solar tanks	number/year				
	Solar controllers	number/year				
	Complete DHW systems	systems/year				
Export	Glazed collectors *	m ² /year	232900	319950	440210	Germany, Spain, France
	Solar tanks	number/year				
	Solar controllers	number/year				
	Complete DHW systems	systems/year				
* Total m ² of glazed flat plate collectors and evacuated tubes						
** If the import or export comes from mainly one country, please specify the country						
Questionnaire for cross border trade of solar thermal products						
Name of person filling out the table:		Jan Erik Nielsen				
Country:		Denmark				
Date:		26-05-2006				
			2003	2004	2005	Most important import/export country **
Import	Glazed collectors *	m ² /year	1500	2000	2500	Austria+Germany+UK
	Solar tanks	number/year	30	100	150	
	Solar controllers	number/year	300	400	500	Germany+UK
	Complete DHW systems	systems/year				
Export	Glazed collectors *	m ² /year	1500	2000	2500	Uganda, Sweden, Ireland
	Solar tanks	number/year				
	Solar controllers	number/year	370	500	900	
	Complete DHW systems	systems/year				
* Total m ² of glazed flat plate collectors and evacuated tubes						
** If the import or export comes from mainly one country, please specify the country						
Questionnaire for cross border trade of solar thermal products						

Name of person filling out the table:		Werner Koldehoff, Gerhard Stryi-Hipp				
Country:		Germany				
Date:		24-04-2006				
		2003	2004	2005	Most important import/export country **	
Import	Glazed collectors *	m ² /year	270.000	300.000	350.000	
	Solar tanks	number/year				
	Solar controllers	number/year				
	Complete DHW systems	systems/year				
Export	Glazed collectors *	m ² /year	~70.000	~90.000	~120.000	
	Solar tanks	number/year				
	Solar controllers	number/year				
	Complete DHW systems	systems/year				
* Total m ² of glazed flat plate collectors and evacuated tubes						
** If the import or export comes from mainly one country, please specify the country						

Questionnaire for cross border trade of solar thermal products						
Name of person filling out the table:		Joao Correia de Oliveira				
Country:		Portugal				
Date:		18-05-2006				
		2003	2004	2005	Most important import/export country **	
Import	Glazed collectors *	m ² /year	3000	5500	8000	Australia, Austria
	Solar tanks	number/year	1000	1800	3000	
	Solar controllers	number/year		300	400	Germany
	Complete DHW systems	systems/year		200	450	Australia, Austria, Spain
Export	Glazed collectors *	m ² /year	250	500		Australia, USA
	Solar tanks	number/year				
	Solar controllers	number/year				
	Complete DHW systems	systems/year				
* Total m ² of glazed flat plate collectors and evacuated tubes						
** If the import or export comes from mainly one country, please specify the country						

Questionnaire for cross border trade of solar thermal products						
Name of person filling out the table:		Jan-Olof Dalenbäck				
Country:		Sweden				
Date:		22-04-2006				
		2003	2004	2005	Most important import/export country **	
Import	Glazed collectors *	m ² /year	4467	6868	11423	China (+ DE + CH + DK + PL)
	Solar tanks	number/year				
	Solar controllers	number/year				
	Complete DHW systems	systems/year				
Export	Glazed collectors *	m ² /year				
	Solar tanks	number/year				
	Solar controllers	number/year				
	Complete DHW systems	systems/year				
<p>* Total m² of glazed flat plate collectors and evacuated tubes</p> <p>** If the import or export comes from mainly one country, please specify the country</p>						

Questionnaire for cross border trade of solar thermal products						
Name of person filling out the table:		David Stickelberger				
Country:		Switzerland				
Date:		12-05-2006				
		2003	2004	2005	Most important import/export country **	
Import	Glazed collectors *	m ² /year	5862	7627	13526	Austria (and Germany)
	Solar tanks	number/year				
	Solar controllers	number/year				
	Complete DHW systems	systems/year				
Export	Glazed collectors *	m ² /year	15200	41030	50952	Germany
	Solar tanks	number/year				
	Solar controllers	number/year				
	Complete DHW systems	systems/year				
<p>* Total m² of glazed flat plate collectors and evacuated tubes</p> <p>** If the import or export comes from mainly one country, please specify the country</p>						

Questionnaire for cross border trade of solar thermal products						
Name of person filling out the table:		Dominique Caccavelli				
Country:		France				
Date:		15-03-2007				
			2003	2004	2005	Most important import/export country **
Import	Glazed collectors *	m ² /year	8500	19700	65800	Germany/Austria
	Solar tanks	number/year				
	Solar controllers	number/year				
	Complete DHW systems	systems/year	820	2540	9100	Germany/Austria
Export	Glazed collectors *	m ² /year	5800	4200	4900	Spain/Africa
	Solar tanks	number/year				
	Solar controllers	number/year				
	Complete DHW systems	systems/year	760	620	840	Africa
<p>Total m² of glazed flat plate collectors and evacuated tubes</p> <p>* ** If the import or export comes from mainly one country, please specify the country</p>						

Questionnaire for cross border trade of solar thermal products						
Name of person filling out the table:		Ing. Giacobbe Braccio				
Country:		Italy				
Date:		March 19, 2007				
			2003	2004	2005	Most important import/export country **
Import	Glazed collectors *	m ² /year	33000	35000	42000	Greece, Germany and Israel
	Solar tanks	number/year	8120	8750	10500	
	Solar controllers	number/year				
	Complete DHW systems	systems/year				
Export	Glazed collectors *	m ² /year	2000	5000	8000	UK, Germany, Austria, botswana
	Solar tanks	number/year	500	1250	2000	
	Solar controllers	number/year				
	Complete DHW systems	systems/year				
<p>* Total m² of glazed flat plate collectors and evacuated tubes</p> <p>** If the import or export comes from mainly one country, please specify the country</p>						

Questionnaire for cross border trade of solar thermal products							
Name of person filling out the table:		E. Mathioulakis, G. Panaras					
Country:		GREECE					
Date:		23 November 2007					
			2003	2004	2005	2006	Most important import/export country **
Import	Glazed collectors *	m ² /year	7 500	7 900	13 500	9 200	Israel
	Solar tanks	number/year	insignificant	insignificant	insignificant	insignificant	
	Solar controllers	number/year	0	0	0	0	
	Complete DHW systems	systems/year	insignificant	insignificant	insignificant	insignificant	
Export	Glazed collectors *	m ² /year	60 964	64 321	77 175	108 000	Germany
	Solar tanks	number/year	0	0	0	0	
	Solar controllers	number/year	0	0	0	0	
	Complete DHW systems	systems/year	6 321	7 250	11 616	18 000	different countries
* Total m ² of glazed flat plate collectors and evacuated tubes							
** If the import or export comes from mainly one country, please specify the country							

Spain:

Estimated data provided March 2007 by:

- Pilar Navarro Rivero, INSTITUTO TECNOLÓGICO DE CANARIAS, ITC
- Pascual Polo, Asociación solar de la industria térmica, ASIT,

“ASIT thinks that in 2006 175.000m² were installed in Spain. Only 30%-35% are solar collectors made in Spain and the rest are imported from different countries: Germany (first) and Israel (second).

- 2003: 79.200 m² installed
- 2004: 86.600 m² installed
- 2005: 108.000 m² installed

... not have any information about the relation between import/export in these years. Probably it can be the same percentage ...”

Greece:

Data missing !

