

Solar heating in china

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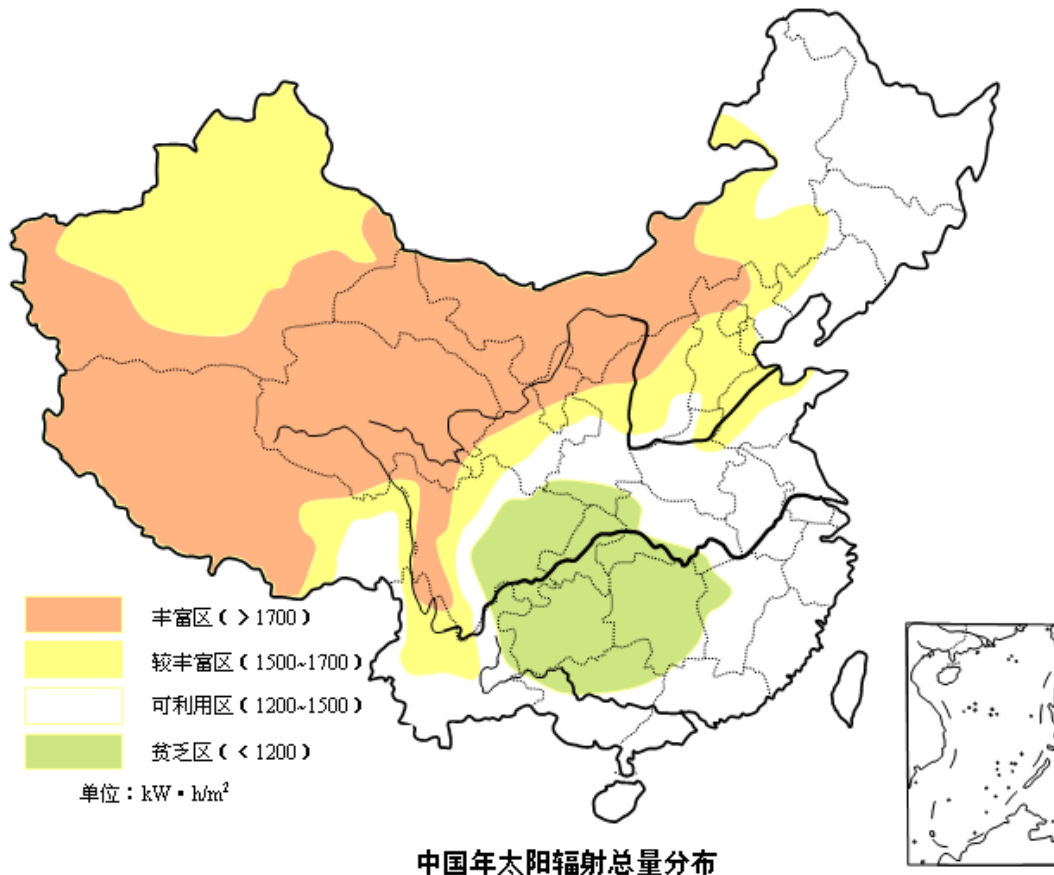


Abundant solar energy resource in china

Classification	Code of resource	Indicator:kWh/m ² .a horizontal	Share of territory
Most abundant	I	≥ 1750	17.4%
Very abundant	II	1400~1750	42.7%
Abundant	III	1050~1400	36.2%
Normal	IV	≤ 1050	3.70%

- China's land surface is divided into four regions according to the Abundance of solar resource
- Over two thirds of the territories of china receive over 2000 hours of sunshine annually
- category 1~3 regions account for over 96% of the land territories of china(larger than 1050 Kwh/m².a)

Distribution of solar radiation in china



- Solar heating systems can be used in the most area
- Particularly in western china, the annual sunshine hours are over 3000
- So in western china, there are huge potential to built large solar thermal power station.

Healthy, sustained and rapid development of solar heating industry

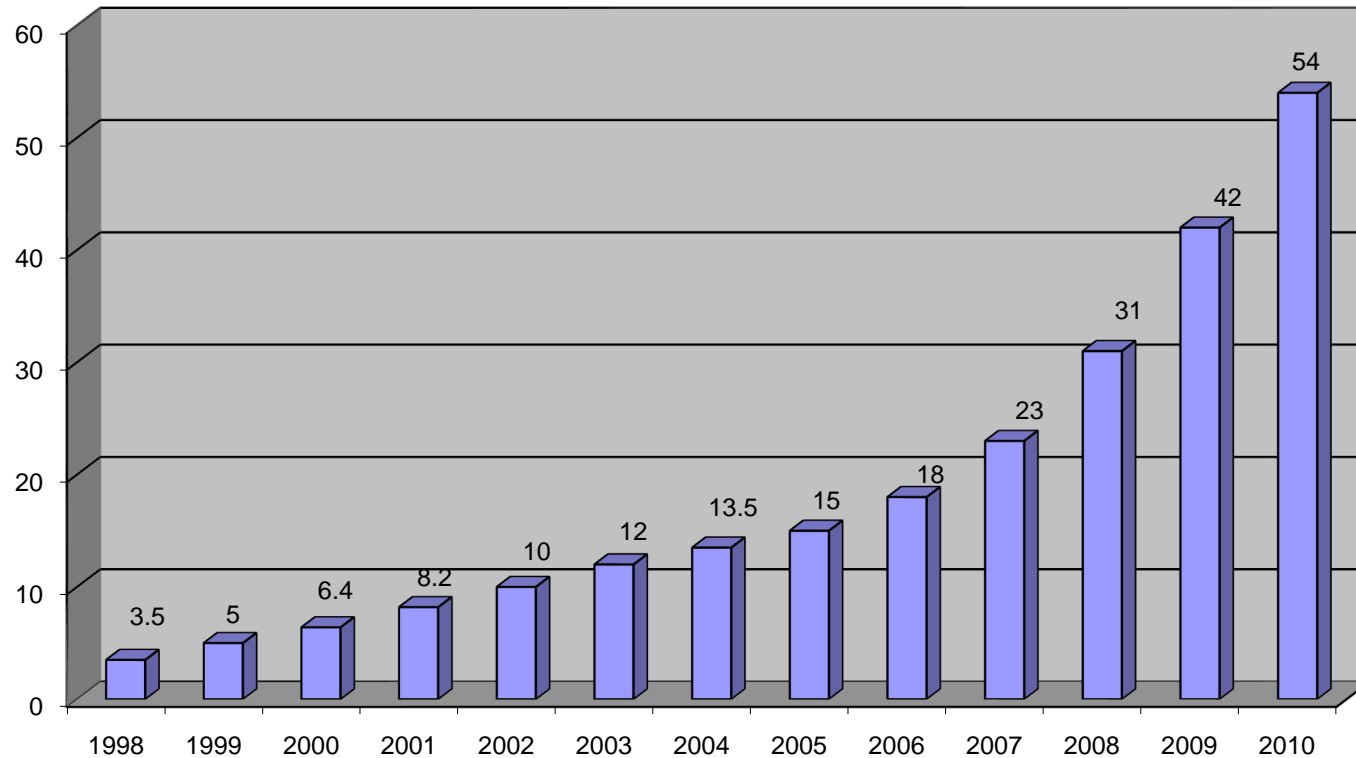
Year	Total output		Increase over the previous year (%)	Installed and operational		Increase over the previous year (%)
	10000m2	MWth		10000m2	MWth	
2001	820	5740	28	3200	22400	23
2002	1000	7000	22	4000	28000	25
2003	1200	8400	20	5000	35000	25
2004	1350	9450	12.5	6200	43400	24
2005	1500	10500	11.1	7500	52500	21
2006	1800	12600	20	9000	63000	20
2007	2300	16100	30	10800	75600	20
2008	3100	21700	25.8	12500	87500	15.7
2009	4200	29400	35.5	14500	101500	16
2010	5400	37800	33	17300	12100	19.3

■ In 2010, newly installed solar collectors reached 54 million m2, an increase of 33% over the past year.

■ The total installed and operational collector reached 173 million m2!

Annual newly installed collector

Newly installed collector area (million m²)



•Last five years, the growth rate is over 20%(20%~35%)

The main type collector in china (evacuated tube collector)

- ❖ In china ,the evacuated tube collector is most used products. It's share is over 90%;
- ❖ In 2009, the production of evacuated tubes was 353 million;
- ❖ The share of flat-plate collectors is under 10%;
- ❖ But In 2009, the area of flat-plate collectors was about 2 million square meters and annual average increase is 43.5%

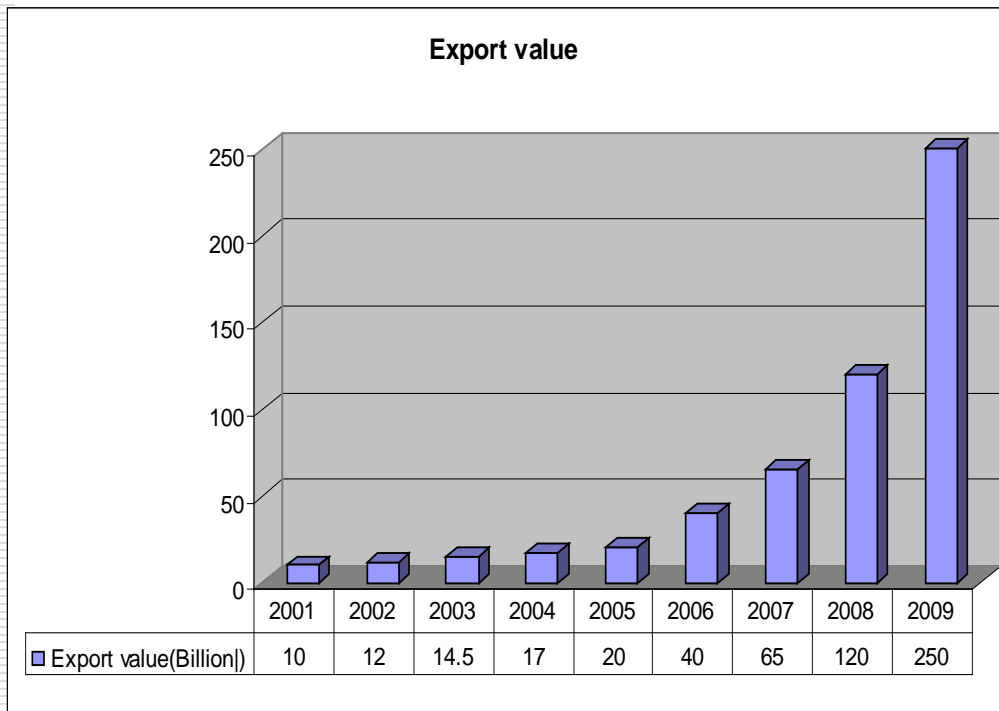
One of important product for Chinese

Year	Electric water heater(%)	Gas water heater(%)	Solar water heater(%)
2001	30.00	54.80	15.20
2003	44.23	37.57	22.20
2005	45.20	26.57	28.23
2007	42.30	19.20	38.50
2008	49.20		50.80
2009	43.3		56.7

- The three types of water heaters: powered by electricity , gas and solar energy
- In 2009,solar energy water heater account for 56.7%. Surpassed the sum of the other couple types of water heater!
- Solar water heater become the one of important product for Chinese

Export of solar water heater 2001-2009

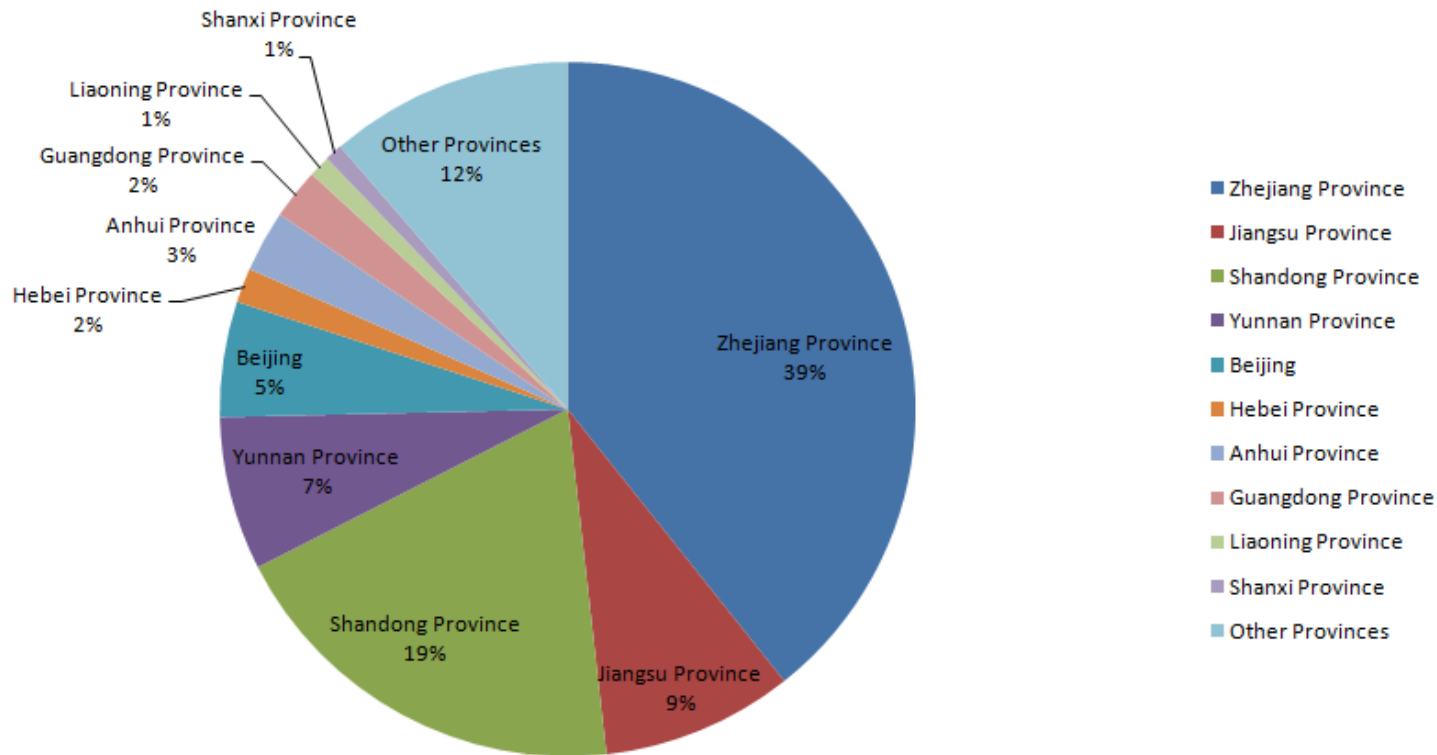
Year	2001	2002	2003	2004	2005	2006	2007	2008	2009
Export Value(billion US dollars)	10	12	14.5	17	20	40	65	120	250
Increase rate (%)		20	20.8	17.2	17.6	100	62.5	84.6	108



- Keeping high-speed growth
- In 2009, export to 154 countries
- Exports reach 250 million US dollars

Production distribution of solar water heaters

❖ About 2800 manufacturers



- The total industry provided 3 million job opportunities
- Have reached reasonable industry distribution
- Zhejiang, Jiangsu, Shandong, yunnan province and Beijing are the important production bases.

Steady market development of three categories of solar water heaters

- ❖ Household solar water heater for single family
- ❖ Market of engineering projects
 - Solar water heating projects in residential building
 - Solar water heating projects in public building
 - Solar water heating projects in industry and agriculture
- ❖ Export

Market shares of solar water heater

Market	2010(%)	2015(%)	2020(%)
Household solar water heater for single family	58	52	46
Solar water heating project in residential buildings	32	35	37
Solar water heating project in public buildings	6.5	8.0	9.0
Solar water heating projects in industry and agriculture	0.2	1.5	3.0
Export	3.0	3.5	5.0

- In 2009,Market value:48 billion DK
- Household solar water heater for single family and Solar water heating engineering project take the mainly market.
- And project in industry and agriculture is new growth point.

New building install solar water heating system in city



- Evacuated tube
- Unpressured tank on the top
- Natural circulation system
- Integrated solar water heater
- The most used product in china**

- In some provinces and cities ,the governments required that newly constructed building Which are Less than 12 storey must be installed solar water heating system by building developer .
- So when the residents buy the house ,they had a solar water heater.

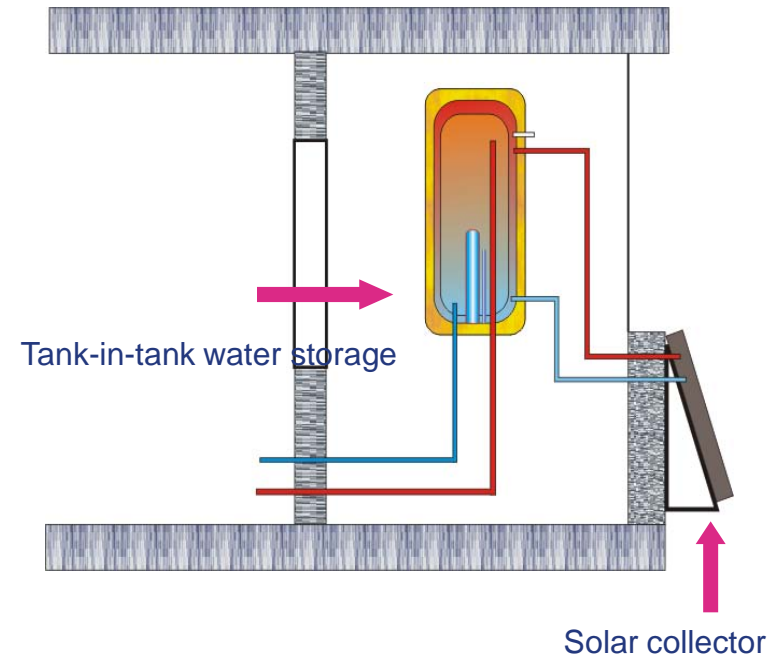
solar heating system in High building



- Do the inclined roof for installing the collectors

- In china ,there are many high-rise buildings in the city.
- Use the different ways to install solar water heating systems
- More and more emphasis on solar-building integration

solar water heater in High building



- Balcony wall solar water heater

The new rural construction



New houses



Old houses



- DHW/space heating combine system

- The new rural construction is a national important strategy
- Bring the huge market to the solar heating industry

Solar water heating system in public building



- More and more public buildings such as school, hotel, hospital, have installed solar Water heating system;

Solar water heating system in industry and agriculture (new growth point)



Crude Oil heating

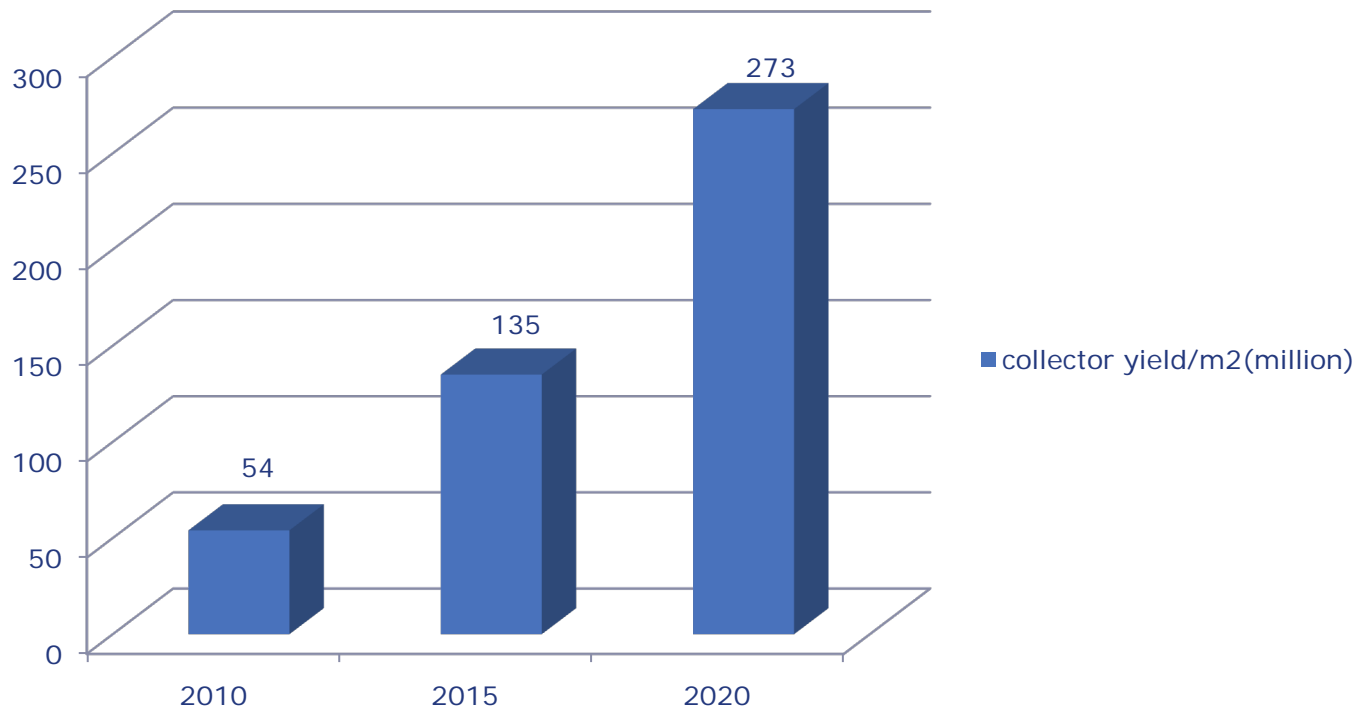


Agricultural greenhouse

- Except to provide low temperature hot water for bathing,
- Improve the technologies of solar energy medium and high temperature heat collector
- And expand the application field of solar heating system, such as industry, agriculture, solar air condition system and solar thermal power station.
- There are huge development space in the future!

Projection of solar water heater market in china

development objectives of 2010-2020



- The growth rate:
 - 2011~2015:20%
 - 2016~2020:15%

**Thanks for
your
attention!**