



Heat generation

Harness the heat of the sun for your business. With solar steam generators from protarget.





Potential

“Within **6 hours**, deserts receive more energy from the sun than humankind consumes within a year.”

Dr. Gerhard Knies, DESERTEC Foundation

Sunlight is free energy

We put it to work

The sun – the, most dependable and least expensive energy source in our universe. Its solar radiation constitutes a limitless supply of energy and virtually inconceivable power. It could meet the global energy demand for 180 years – in just a single day.

Now you too can benefit from this virtually limitless power. With protarget solar steam generators, you can economically harness the energy of the sun to power your business. Efficient, entirely CO₂-neutral, ensuring a bright financial outlook for your business.

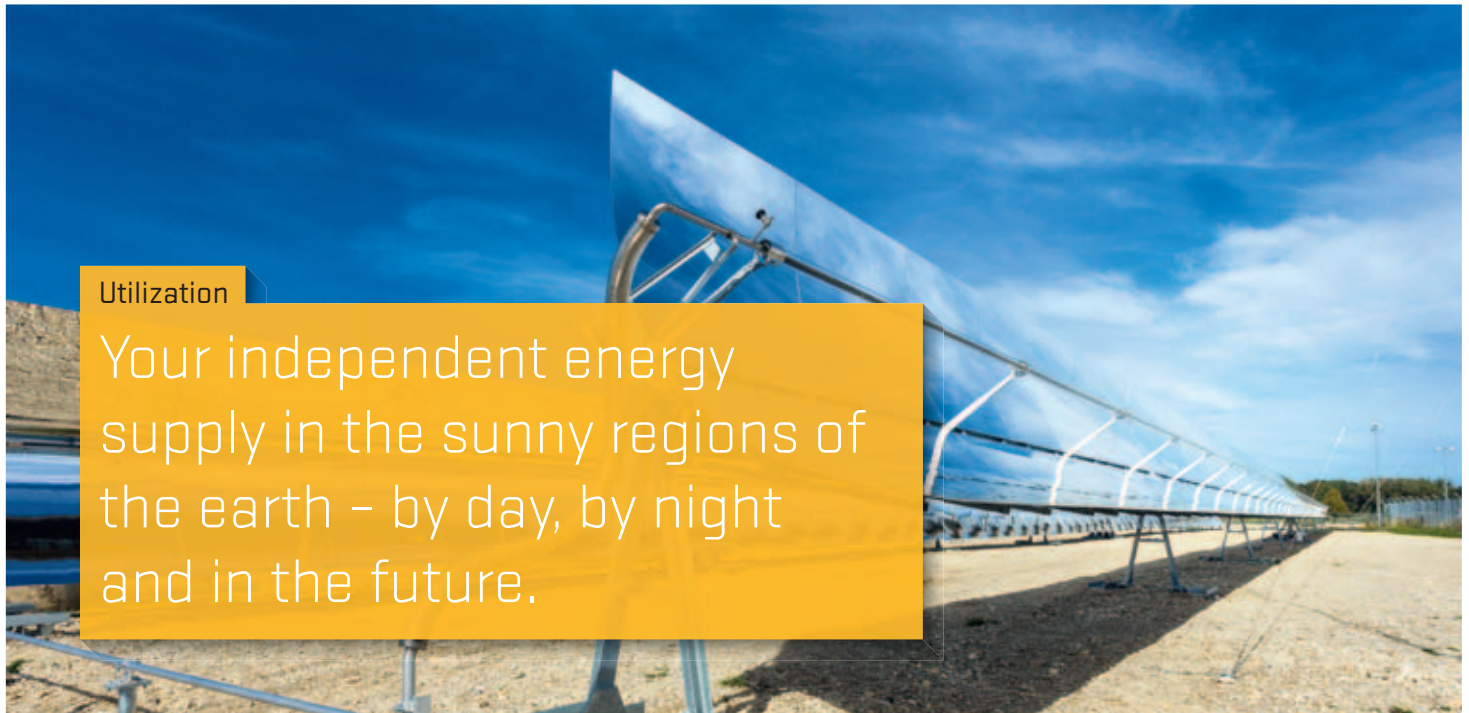
From sun to steam

Our steam generators employ solar thermal technology. The principle is similar to that of a burning glass. Concave mirrors focus the sunlight on a tube containing a heat transfer fluid. This fluid is heated up to 400°C and then used to generate steam.

This process, known as concentrating Solar Power (CSP), has proven itself in practice for over 25 years. Our innovation is that we have made this technology feasible and economic for large-scale consumers and industrial customers. With cost-effective, easy-to-maintain, turn-key solar steam generators.

All advantages at a glance

- Energy autonomy for your company
- Usable for process heat, cooling, air conditioning and desalination
- Low energy generation costs
- No fuel costs
- Technology and components made in Germany
- Steam generators individually scalable.
- Minimum planning and logistics overhead
- Low operating and maintenance costs
- Heat storage for continuous steam generation – even at night



Utilization

Your independent energy supply in the sunny regions of the earth – by day, by night and in the future.

Heat from solar thermal

Your decentralized, autonomous energy supply

Our installations are an economical, straightforward and future-proof solution for generating steam and process heat on site. They unchain you from the local power grid and its outages and they make you independent of future trends in electricity and fuel costs – the sun always shines for free. Even our smallest solar steam generator will save you 50 tons of oil per year and deliver steam with a temperature of up to 400°C. The unbeatable edge that solar heat generation has over other methods is that the sun's energy is converted into steam and process heat directly – there is nothing more efficient.

Ideal for many applications

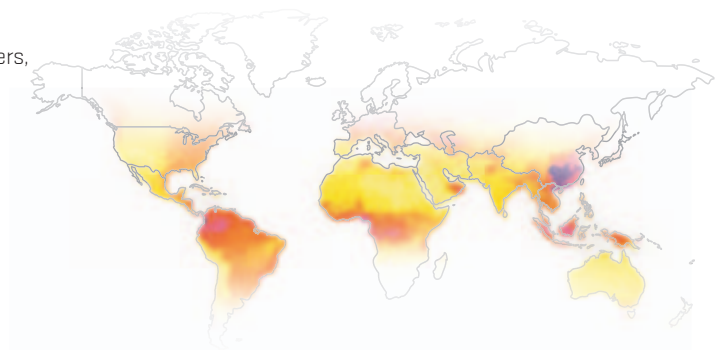
The ideal sites for our solar steam generators are found on every continent, especially in Southern Europe, in India, the MENA region (Middle East and North Africa) and South Africa.

- These regions offer the optimum conditions for solar thermal: numerous sunny days and a high growth in population and energy demand
- Our power plants are extremely attractive for all large-scale consumers, who require steam, process heat or cooling
- This includes industrial parks, textile and food industries, industrial painting and galvanizing, mining operations, desalination plants and air-conditioning for hotels and remote settlements

Usable solar areas



Deserts are an ideal environment for high-performance solar steam generators. An installation the size of just half a football field can generate 300 kg of steam per hour and replaces 50 tons of oil per year.





Solutions

The technology has been proven for decades. Our power plants finally make it commercially usable.

Heat from solar thermal power

Sunlight to process heat – Virtually loss free

With our power plants, you can simply generate your steam and process heat yourself. They are straightforward to set up, dependable in operation and customizable to meet your individual needs.

- The capacity of our solar steam generators can be modularly expanded in steps of 0.25 MW
- Virtually loss-free heat storage ensures night or bad-weather operation
- The installation can also be designed for, air conditioning, cooling and sea water desalination
- Can be equipped with a gas or oil burner for hybrid operation if desired
- Short planning and construction times of no more than 3 months
- All components made in Germany
- Solar steam generators are assembled by protarget's technicians and handed over as turn-key installations. Fully automatic operation for low operating costs
- Minimum maintenance overhead (mirror cleaning)

A plant that pays off

Extraordinarily low operating costs

Solar thermal turns the rules of conventional power plants on their head. Normally, fuel and maintenance account for 80% of the total costs of a power plant. In a solar thermal steam generator, by contrast, these make up just 20%. Your initial investment is amortized continuously and dependably. The full costs are already included with the purchase of the system.

Large local content portion

With our solar steam generators, you have the possibility of achieving even greater cost advantages by utilizing local content in the construction of foundations, the erection of steel structures and the assembly of the solar modules.

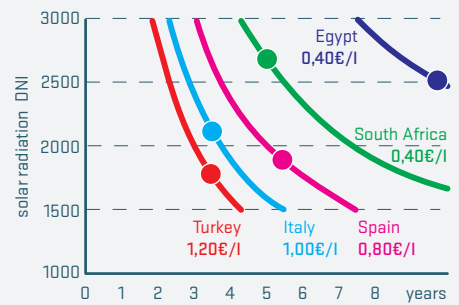
Long-term cost stability

Today, it is globally acknowledged that fossil fuels can only become scarcer, and thus more expensive. But the „fuel“ of a solar steam generator will always be free. The costing of the installation is predictable in the long term, as the maintenance costs are extremely low and its components are durable and easy to replace.

Positive spill-over effects for your marketing

Steam from solar thermal systems is totally environmentally friendly. It is generated without producing CO₂ or consuming precious resources. With solar thermal, you set new standards for sustainability – and can use this for your marketing.

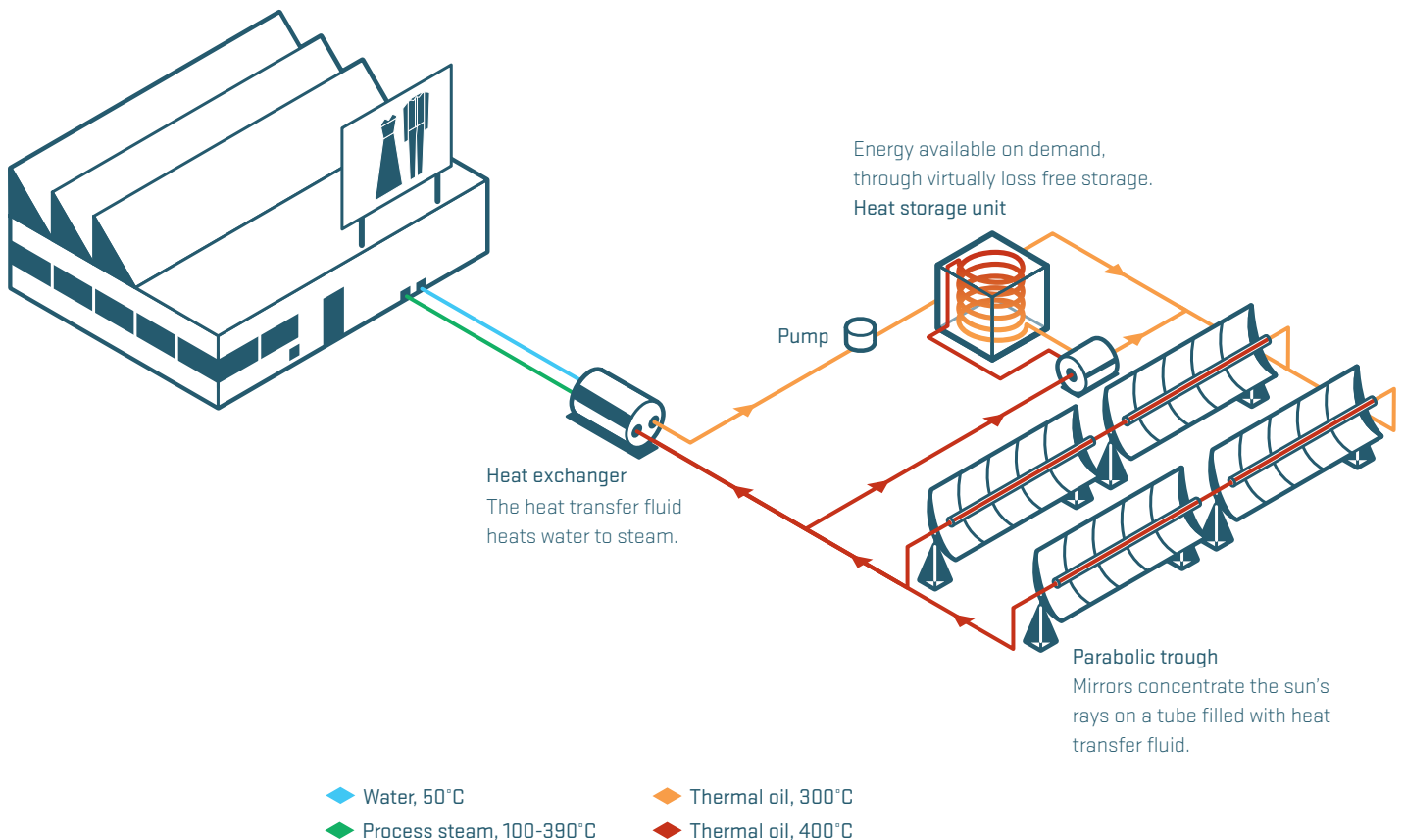
Break-even



Assuming the price of oil remains constant, your investment in our solar steam generators will be amortised in three to ten years, depending on the site.

Our solar steam generators by the numbers

- 80% optical efficiency, 16 solar modules replace 50t oil per year
- Generate steam with temperatures up to 400°C
- From order to operation in six months
- All components designed to last 25 years in desert environments





Mission

Our know-how and technology makes solar energy generation economically feasible.

Our enterprise

Who we are and what we do

We believe that in regions where sunshine and land is available in sufficient quantities, solar thermal is the best and most economical method of energy generation. Our know-how and experience, in combination with modern production technologies from the automotive industry, makes this technology commercially successful. We founded protarget AG expressly to establish the large-scale use of solar thermal heat and energy generation as an economical and affordable technology.

We understand the conditions and requirements that a solar thermal power plant needs to fulfil in a desert environment, over period of 25 years and more. Benefit from engineering made in Germany, with the experience of power plant projects around the world. We are supported through technology transfer of the solar thermal research institute of the German Aerospace Centre (DLR) and our collaboration with numerous industrial partners.

Our technology partners



Contact

Martin Scheuerer
protarget AG | Zeissstraße 5
50859 Cologne | Germany
e-mail: scheuerer@protarget-ag.com
tel: +49 2234 9491 562
fax: +49 2234 2049 286
web: www.protarget-ag.com

Sample calculation



Is a solar steam generator right for you?
Fill out our quick-check form at
www.protarget-ag.com/quick and we will
calculate your project within 48 hours.

Site visits in Germany

Located close to Munich, Germany, one of our systems can be seen in operation at the zero emissions development - City of Wood. You are cordially invited to visit this site and see CSP technology in operation.