GREENROCK
THE SALTWATER ENERGY STORAGE SYSTEM

Thank you for your interest in the **safest** and **most environmentally-friendly** way of storing energy of your PV.

Why would I want to store energy?

- ✓ You produce your own electricity by using a wind power plant or photovoltaic system and you are not immediately consuming all the electricity? Then saving and storing the energy is the perfect solution.
- ✓ Saving energy with a battery ensures that you always have a back-up.
- ✓ Your environmentally friendly energy is available directly for you.
- ✓ No risks regarding fluctuating feed-in tariffs from your grid provider.
- ✓ Increase consumption of clean energy and decrease consumption from other sources such as nuclear power or coal-fired power plants.
- ✓ Emergency power supply guarantees that your most important devices will be supplied in the event of a failure by the utility. E.g. refrigerator and freezer, alarm system, ventilation, facilities for animals on a farm, and much more.
- ✓ Storage solutions with island-mode continue to provide you with power during a black-out. There will be light at your home when all the other residents in your street will stay dark. Run your own self-sufficient grid.

What's the recommended size of a storage system?

Depending on local conditions and energy consumption, a battery in the ratio 1: 1 to 1: 1.5 to the kWpeak power of the PV system is recommended.

A larger storage system provides safety in case of increased consumption as well as higher back-up in case of power failure. Furthermore a larger system is more durable.

Example: PV-supply with 8kWp: energy storage system with 8kWh – 12kWh

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What are the most common methods for storing electricity?

Lead-Acid Batteries:

+ Cheap

- Toxic materials
- Short life
- Maintenance
- Danger of explosion
- Flammable
- Limited shelf life
- Construction measures to be fulfilled
- Permanent damage if completely discharged
- Usable capacity only 50% - double sizing needed

Lithium-Ion-Batteries:

+ Most popular technology
+ High Energy density
+ Space-saving
+ Applicable for automotive applications

- Flammable
- Thermal runaway possible
- Toxic materials
- Materials may have resource limits

Saltwater Battery:

+ Highest safety standard for stationary applications
+ Non-flammable cells
+ Non-explosive
+ Non-toxic
+ Absolutely maintenance-free
+ 100% deep discharging
+ High shelf life
+ No separate building regulations (like air conditioning Requirements for battery compartment,)
+ No dangerous goods during transportation and storage
+ Durable
+ Made out of common, non-toxic raw materials

- needs more space than other batteries

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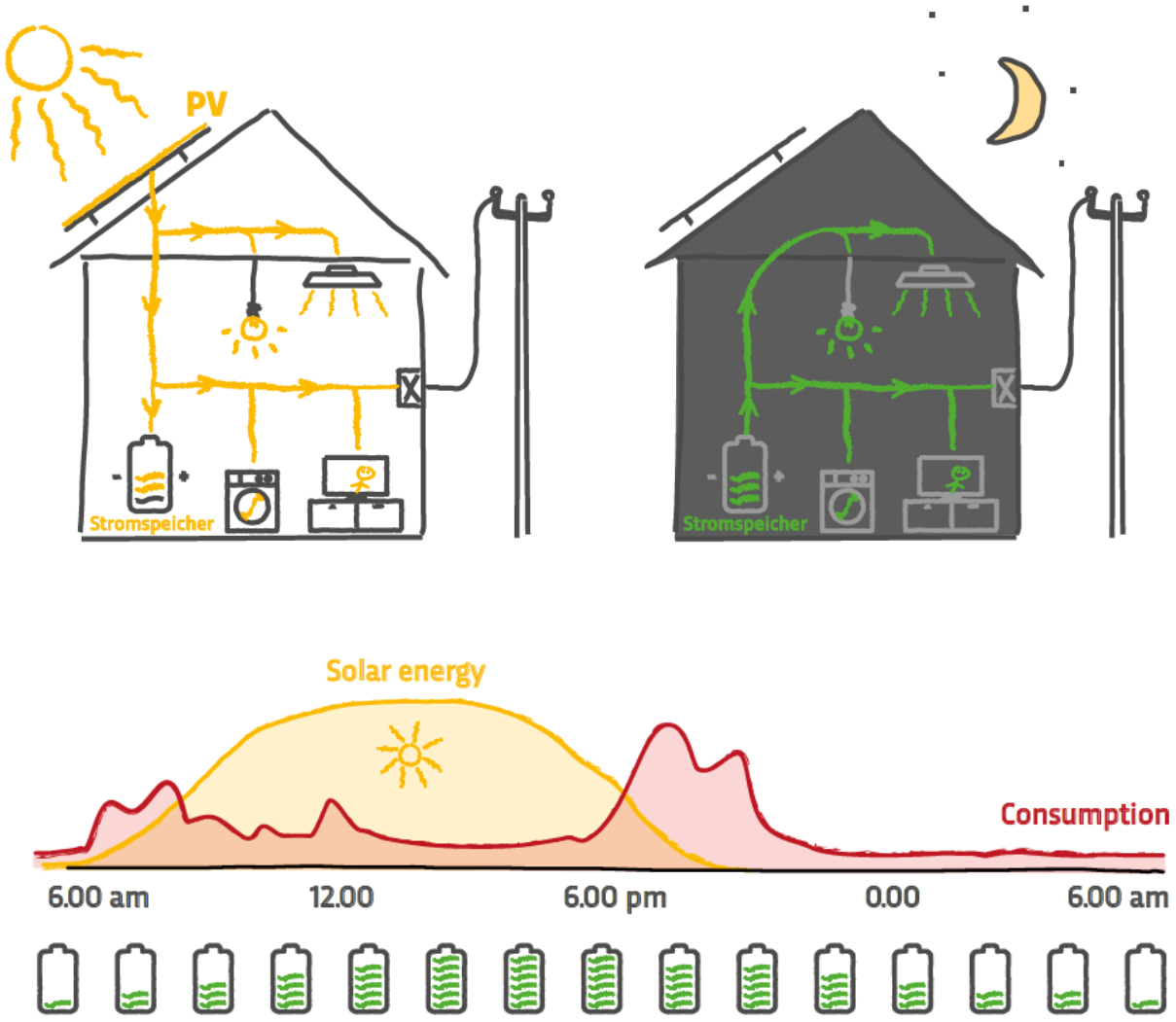
How much is a battery storage solution?

Depending on the size of the storage system and the electronics used, the price per kWh is around 800 to 1,200 EURO. A GREENROCK system includes all electronics, such as inverters, intelligent energy management system for visualization and if required, emergency or single-function operation, not including installation and taxes.

Subsidies for sustainable storage solutions are offered in many states and countries. Your installer and energy specialist and BlueSky Energy are happy to advise you.

Tip for Price comparison: Make sure that necessary accessories such as inverter and energy management system are included in the calculation. GREENROCK is a complete storage solution and is delivered as plug & play system - ready for installation. Other companies may offer battery but accessories such as: inverter and power management system are priced separately.

Classic application of photovoltaic electricity storage



Above figures show the energy flow during the day when using a PV system with energy storage.

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Why choose saltwater technology?

The principles behind saltwater technology are simple and have been in use for decades. Utilization is similar to lead-acid batteries but offers a significant advantage: Only non-toxic and natural materials are used. More than 16,000 installed saltwater based energy storage units speak for themselves. The technology has been in use successfully across in multiple markets and in use for years.

- ✓ Rates for electricity will continue to rise. Experts assume an annual increase of 3.5%.
- ✓ State or federal governments offer subsidies.
- ✓ Decreasing reimbursement for feeding your excess electricity into the grid makes storing interesting.

How does saltwater technology work?

Between the anode of carbon-titanium-phosphate and the cathode of manganese oxide, the ions of the salt water electrolyte migrate and make the energy flow possible. By changing the ions between anode and cathode, the battery is charged and discharged. Only materials with sufficient resources are used, absolutely non-toxic and abundant raw materials.

Which size is a saltwater energy storage?

A storage unit of 2 kWh and housing is 450x450x900mm and has a weight of 118 kg. A DC installation box of 450x900x900mm, which generally is mounted on top of the storage units, is added to each complete system.

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Voices of satisfied customers:

Our GREENROCK storage system combined with a photovoltaic system reaches nearly 100% self-sufficiency in summer. Thanks to island function, air conditioning, lighting and operating systems are working even in the event of a black-out. Our animals are well tended to and never in danger.

Jürgen Hutsteiner, farmer, Steyr, Austria

The project arose from the idea of supplying a multi-family house with solar energy. Large photovoltaic areas provide energy which is converted into electricity and heat. The power storage serves as buffer storage when the sun is not shining. With GREENROCK we found an economical solution with maximum safety.

Paul Langmann, Langmann Consulting Frauental, Austria

Until now, we had to feed our surplus solar power to the grid operator and then purchase expensive electricity at night. Thanks to GREENROCK storage system, we can use our own solar power around the clock and are largely independent of the price of electricity.

Anita L. Area Innsbruck, Austria

"Where children are around there is no space for eventual risks. Any risk of fire or explosion of lithium-ion batteries must be strictly excluded. Therefore, the decision had clearly fallen for the safe saltwater technology. After all, the project is about our children and our future."

Maria Gardfjell Deputy Mayor of Uppsala about project Tiundascolan

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