KYOCERA

KYOCERA SOLAR ENERGY

KYOCERA CORPORATION

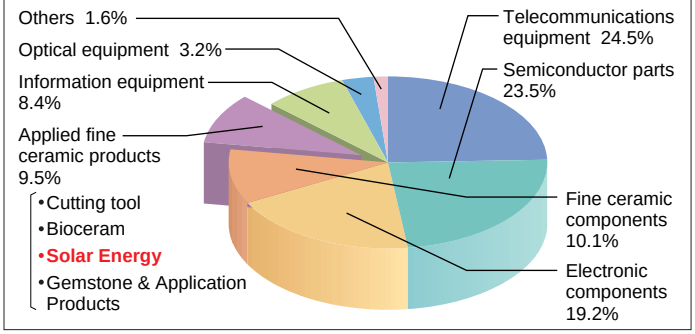
Corporate Profile

Kyocera's Earth-Friendly Corporate Headquarters

Kyocera's corporate headquarters building, completed in August 1998, is a model of environmental efficiency. The building's roof and south wall are fitted with a 214kW solar power generating system that can save an estimated 45,000 liters of fuel oil each year. The building also incorporates a cogeneration system that minimizes sulfur-dioxide emissions and is capable of reusing emitted heat. It even has a rainwater collection system that reduces the water needed to irrigate the landscaping.

- Established: April 1, 1959
- President: Yasuo Nishiguchi
- Capital: ¥115,703,320,000 (as of March 31, 1999)
- Employees: 13,759 (as of March 31, 1999)

Non-Consolidated Sales Breakdown



Kyocera - active in the solar energy business

Kyocera is active in all aspects of R&D on clean, environmentally friendly solar power, from developing new materials and devices to designing new products and systems.

The history of Kyocera solar energy

1975	●Kyocera helped organize JSEC (Japan Solar Energy Co.). Research on solar cells began.
1979	●7 kW system installed for microwave communication in Peru.
1980	●Shiga Yohkaichi Factory established, R&D and manufacturing of solar cells and products began in earnest.
1982	●Mass production of multicrystal silicon solar cells began.
	●Village electricity system shipped to Pakistan.
1984	●Road signs incorporating solar cells developed, sales commence.
1985	●Commission for Research and Development started, based on the Sunshine Plan.
1988	●Multicrystal silicon solar cells (10 cm square) achieved 15.5%, the world's highest energy conversion efficiency.
1989	●Multicrystal silicon solar cells (15 cm square) achieved 14.5%, the world's highest energy conversion efficiency.
1990	●"Blue Eagle", a solar racing car, completed; competed in the Australian cross-continental "World Solar Challenge '90" race.
	●According to MITI, Kyocera had the top share in special public use solar systems.
1991	●Utility connected system installed in Kitami city (first in the industry).
	●6 MW/year solar cell production line, the largest in Japan, established.
1993	●Single-crystal silicon solar cell components (10 cm square) achieved 19.5%, the world's highest energy conversion efficiency.
	●Sales of home PV generation systems commence (first in the industry).
1994	●According to MITI, Kyocera had the top share in the home PV generation system monitor business.
1995	●New technology enables mass production of larger multicrystal silicon solar cells (increase from 10 to 15 cm a side).
1996	●Kyocera Solar Corporation, specializing in the sale, operation, and servicing of devices using solar energy, founded.
	●Multicrystal silicon solar cells (15 cm square) achieved 17.1%, the world's highest energy conversion efficiency.
1997	●36 MW/year solar cell production line established.
1999	●Kyocera merged with Golden Genesis Company.

Shiga Factory

The Shiga factory in Shiga prefecture is active in R&D, as well as the manufacture of solar cells, modules, equipment parts, and devices which exploit heat.

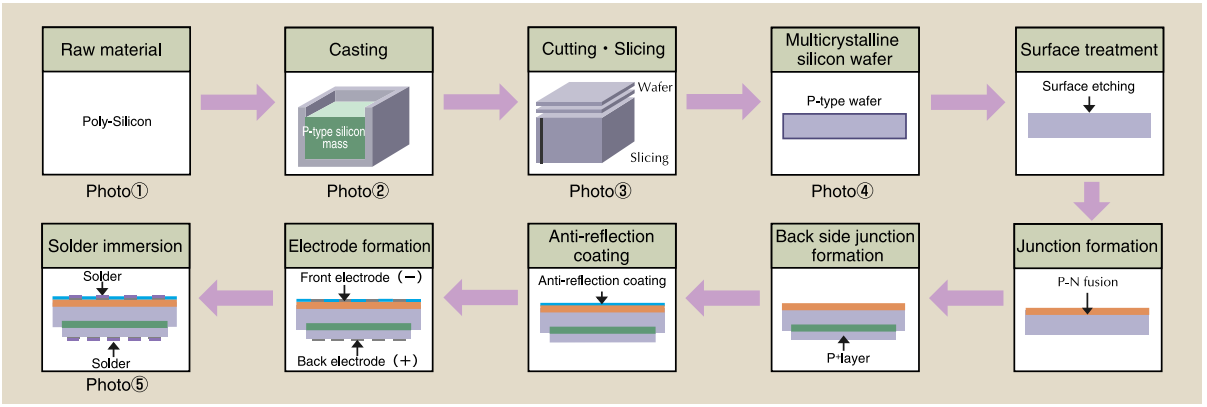
Chiba Sakura factory

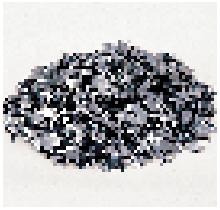
The Sakura Factory in Chiba prefecture is involved in everything from R&D and system planning to construction and servicing.

Solar cells – the basics

Multicrystal silicon solar cells

Kyocera is primarily active in R&D and production of solar cells used to generate electric power. We are working to create more efficient, lower-priced solar cells with a larger surface area and reduced thickness by developing furthermore multicrystalline silicon solar cell technology.




① Silicon


② Silicon block


③ Cutting

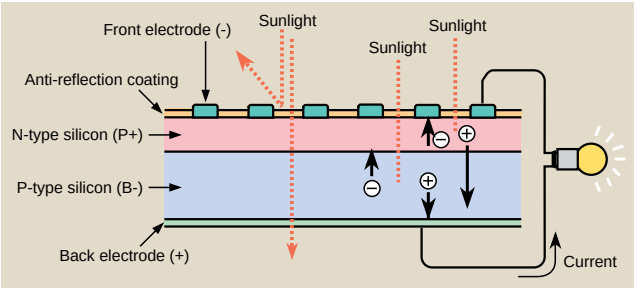

④ Silicon wafer


⑤ Multicrystal silicon solar cells

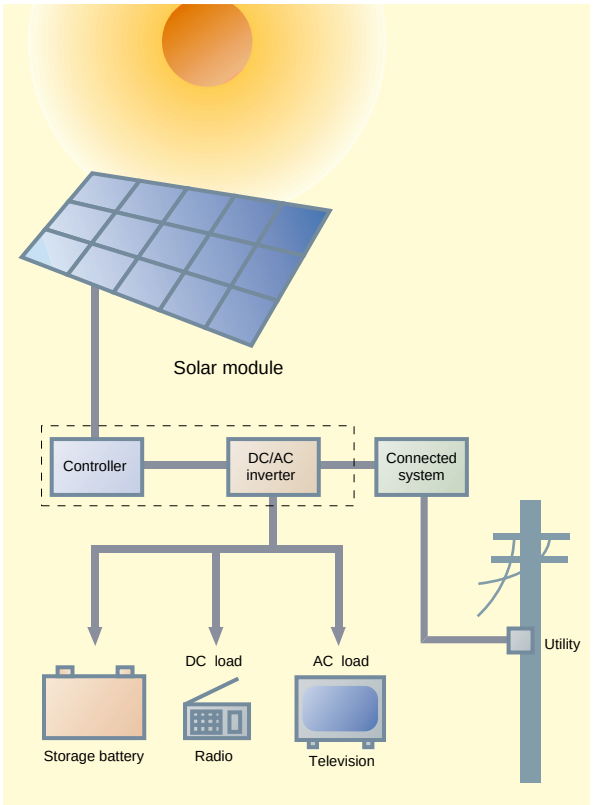

Solar modules

What is a solar cell?

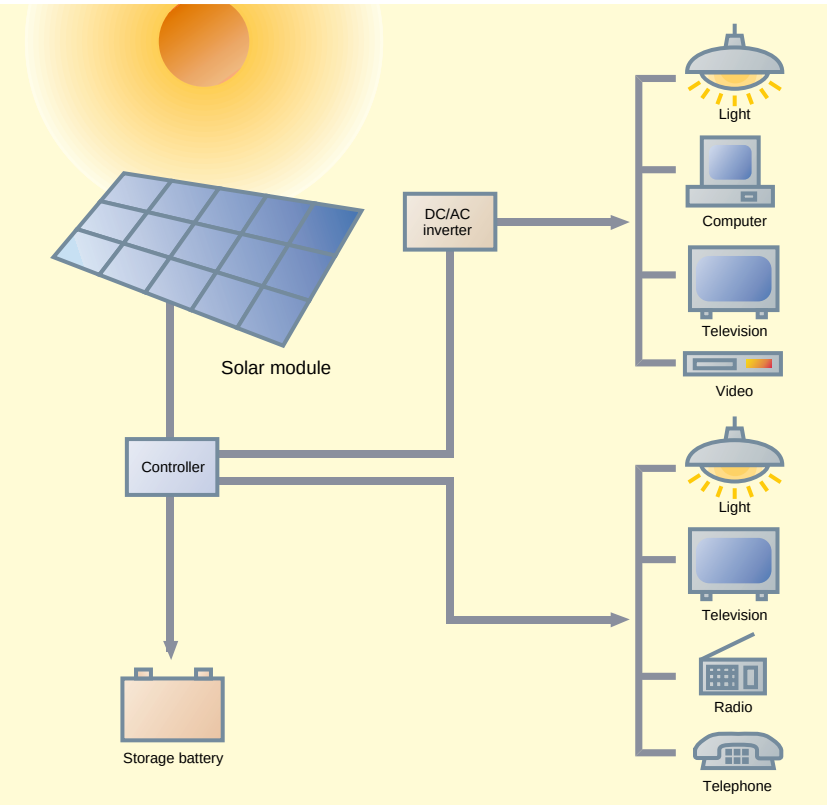
A solar cell is a kind of semiconductor device that takes advantage of the photo-voltaic effect, in which electricity is produced when the semiconductor's PN junction is irradiated. When light strikes a solar cell, part of it is reflected, part of it is absorbed, and part of it passes through the cell. The absorbed light excites the bound electrons into a higher energy state, making them free electrons. These free electrons move about in all directions within the crystal, leaving holes where the electrons used to be, and the holes also shift around the crystal. The electrons (-) collect in the N-layer, the holes (+) in the P-layer. When the outside circuit is closed, electricity flows.



Grid Connected System



Stand-Alone System



Grid Connected System

Germany : 1.5kW / Industrial use

Switzerland : 18kW / Industrial use

Japan : 4.9kW / Residential use

Utility connected photovoltaic generation systems

In utility connected photovoltaic generation systems, the wiring from a photovoltaic generating system is connected to a utility line, and any surplus electricity generated during the day is sold to the electric company in Japan. Electricity required at night is purchased in the usual way.

Germany : 3kW / Residential use

Germany : 77kW / School

Kyocera Solar Group has the practical experience and engineering resources to achieve world class performance standards for various kind of systems - anywhere the sun shines. The Company's expertise is based upon designing, manufacturing, and installing the most technologically advanced solar electric power systems available today. With thousands of successful installations worldwide, Kyocera continues to be the leader in the solar electric industry.

SOLAR MODULE
High-efficiency multi crystal solar modules.

SOLAR TELECOMMUNICATION SYSTEM
Complete solar electric power system for Cellular repeaters and Microwave repeaters.

Stand Alone System

U.S.A : 6.7kW / Telecom

Communications

China : 4kW / School electrification
(NEDO PROJECT)

Education

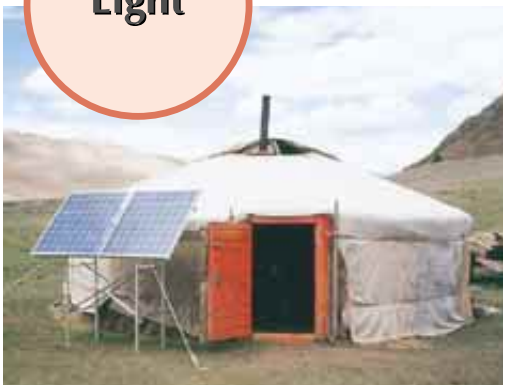
Water

Japan : 204W / Pump system

Stand-alone photovoltaic generation systems

A stand-alone photovoltaic generation system stores generated electricity and then distributes it as necessary. This system is often used independently, and can be installed with little difficulty anywhere there is sunlight.

Light

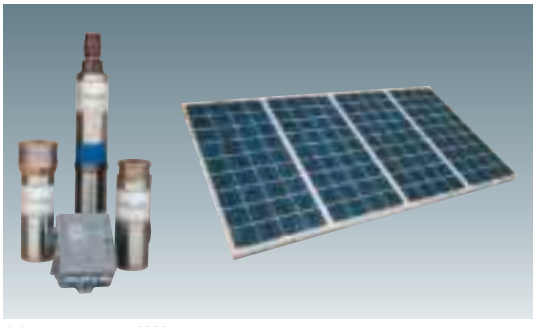


Mongolia : 204W / Tent power source

Medicine

South Africa : 612W / Hospital

Wind / PV Hybrid System



SOLAR PUMP SYSTEM
Solar powered submersible pumps for water delivery in remote areas.

WIND / PV Hybrid System
Small wind systems complement solar electric system.

Kyocera Solar Group Sales office

KYOCERA

KYOCERA CORPORATION

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