Mitsubishi Electric's Photovoltaic Timeline

1974	Started research & development of PV technology
1976	Established space satellite business
1986	Beginning of public and industrial systems business at Itami-works
1993	Delivered a 750kW system (one of the largest systems in Japan) to Miyakolsland in Okinawa Prefecture
1996	Started residential system business at Nakatsugawa-Works
1997	Awarded the prize for New Energy Vanguard 21 by power conditioner
1998	Established a PV plant, and started production of PV cells and modules
1999	All PV business was integrated in Nakatsugawa-Works Awarded the prize for Good Design Award by roof-integrated module
2001	Expand the production capacity to 25MW Awarded the 6th New Energy Award by residential system for hip roofs
2003	Expand the production capacity to 35MW (January) Established a PV plant (Kyoto factory), and started production of PV modules Started production of "Lead-Free Solder" PV modules Expand the production capacity to 50MW (September)
2004	Expand the production capacity to 90MW (July)
2005	Expand the production capacity to 130MW (plan)

http://Global.MitsubishiElectric.com/solar

MITSUBISHI ELECTRIC

PHOTOVOLTAIC MODULE

Changes for the Better

PHOTOVOLTAIC MODULE

Alternative energy for a more environmentally friendly world.

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: MITSUBISHI DENKI BLDG., 2-2-3, MARUNOUCHI, CHIYODA-KU,TOKYO 100-8310, JAPAN

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Mitsubishi Electric's Photovoltaic power-generation systems are used in a wide range of facilities throughout the world.

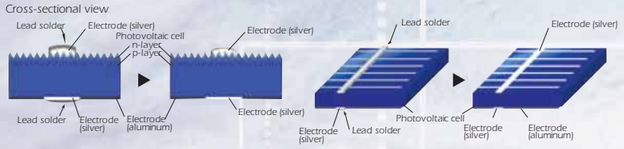
As a general manufacturer of electrical machinery and appliances, Mitsubishi Electric Corporation offers a legacy of innovation and achievement that goes all the way back to its founding in 1921.
The Mitsubishi Electric product range includes household electrical appliances, heavy machinery, industrial products, and automation equipment, as well as information/communication systems and electronic devices.
We believe our industrial and technological strengths provide a unique advantage in developing new energy systems that contribute to more environmentally friendly communities.
Since 1976, when Japan launched its first commercial satellite, we've participated in approximately 250 related projects around the world. One such project has led to the development of a number of photovoltaic power generation systems that have proven extremely reliable, even in the harsh conditions of outer space.
We've applied leading-edge technologies from our space-related applications to terrestrial systems to create high-performance photovoltaic power-generation systems that offer an astonishing range of applications.

Lead-Free Solder Module

Lead content: 0 g*. A new form of photovoltaic power generation, even friendlier to the environment.
Mitsubishi Electric has successfully produced the first cells in Japan that do not require solder coatings, a milestone in the development of environmentally friendly composite materials and manufacturing processes for the silver electrodes used on the surfaces of crystalline silicon photovoltaic cells. Our photovoltaic modules are now made using lead-free solder, completely eliminating lead from the manufacturing process. *lead volume used in soldered parts

No solder coating required for cells-for higher PV module conversion efficiency.
Using newly developed silver electrodes that offer superior weatherproofing, we've perfected a technology for producing photovoltaic cells that do not require solder coatings. We've even achieved higher PV module conversion efficiency, taking advantage of the new product's ability to more uniformly reflect the sun's rays.

Cross-sectional view



Photovoltaic Plant

The photovoltaic plant is one of Mitsubishi Electric's most advanced integrated production facilities, incorporating our unique technologies and automated processes. In an integrated production system, the plant manufactures high-efficiency photovoltaic cells using polycrystalline silicon wafers and photovoltaic modules. Thus throughout the continuous process from cells to modules, high quality is maintained. All our photovoltaic modules are 100% inspected, ensuring the delivery of reliable and high-performance products to the market.

The plant is ISO 14001 certified for environmental management systems. Our environmental protection philosophy is reflected in all activities from development through to manufacturing and sales.

Mitsubishi Electric Corporation's Nakatsugawa Works is an ISO certified plant, having obtained both ISO 9001 Quality Management System and ISO 14001 Environmental Management System certification.

SPACE

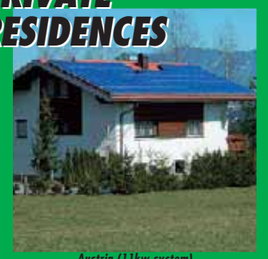
MANMADE SATELLITES

Mitsubishi has fully applied the expertise it has developed as a leading manufacturer in the field of space development to its terrestrial systems, producing a wide range of products from photovoltaic cells to power conditioners.

DS2000 Standard Satellite

THE GROUND

PRIVATE RESIDENCES

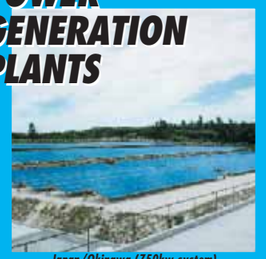


Austria (11kw system)

Thai Iando (3kw system)

California (4kw system)

POWER GENERATION PLANTS

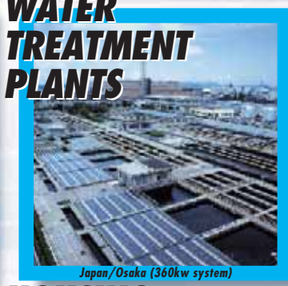


Japan/Okinawa (750kw system)

FACTORIES

Japan/Kumamoto (480kw system)

WATER TREATMENT PLANTS



Japan/Osaka (360kw system)

HOUSING DEVELOPMENTS

Japan/Niigata (10kw system)

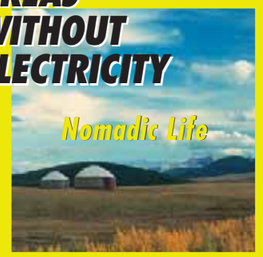
SCHOOLS

Germany (20kw system)

Italy (20kw system)

Japan/Kanagawa (10kw system)

AREAS WITHOUT ELECTRICITY



OTHER APPLICATIONS

Japan/Shiga (60kw system)

Japan/Nagano/Streetlights