

## Public recognition

We received the presidential award of New Energy Foundation in the seventh new energy prize for the photovoltaic system integrated with roofing material, “Kubota’s roofing material, Ecolony, generating electric power.” We also received the director general’s award of Agency for Natural Resources and Energy in the same prize for Japan’s largest photovoltaic-town, “Cosmo town Kiyomino-Saizu,” where every house has Ecolony on its roof. ( February 6, 2003 )

### Kubota’s roofing material, Ecolony, generating electric power

#### Outline and features of the system and equipments

The photovoltaic panels are mainly constructed on the existing roofs at present. However it is expected that the customers who require the good design of house and roof, trust, and added value would increase as the market becomes mature.

Kubota’s roofing material, Ecolony, generating electric power is an attractive system in which free design and construction is possible without any other companies’ imitation, as well as good design and trust.

#### Beautiful roof generating electric power

It is possible to keep the original beauty of a house, since our system is integrated with roofing material which generates electric power itself, not put on the roof. And the quiet color of black of the roofing material harmonizes with the scenery of towns.

“The thin-film-silicon-hybrid solar cell” was adopted for the first time in the world.

In general, it was the problem that the gen-

erated amount of electric power in the integrated type decreased because of high temperature in the module, compared with the conventional put type. However we solved this problem by adopting “The thin-film-silicon-hybrid solar cell” with lower decrease in generating efficiency in spite of high temperature in summer.

Two-sheets-unit installation made it possible to comply with various kinds of shapes of roof.

It is possible to install the system by two sheets because we succeeded to raise the voltage per sheet. So our system is available to various kinds of shapes of roof.

Maintenance and recycling were considered in the design of the products.

It is possible for our customers to exchange only one sheet easily in our system if it were broken. We also consider recycling when

### “Cosmo town Kiyomino-Saizu” with photovoltaic system in every house

#### Outline and features of the system and equipments

In “Cosmo town Kiyomino-Saizu,” the integrated-type photovoltaic system was installed to every house in order to supply the dwellings which could be an environment-friendly and excellent social capital goods. The system of three kW was installed to all of 79 houses, which is the largest photovoltaic town in Japan.

#### The photovoltaic system putting dwelling environment before anything else

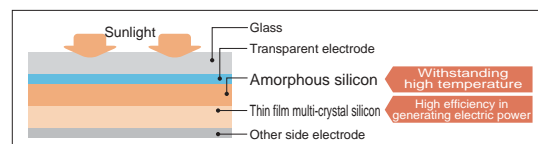
Considering the photovoltaic system from the point of view of dwellings and keeping towns in good condition, it is necessary to comply with various kinds of shapes of roof, and good design is also required. Photovoltaic system should be designed putting the residents’ lives environment before anything else, not considering the design based on the photovoltaic system itself. And the roof which harmonizes with the appearance of the houses could generate electric power.

Kubota’s Ecolony realized this concept. We realized what the photovoltaic system for dwellings should be, namely the ordinary roofing material generates electric power in a casual manner. Moreover, we also realized the desired environment surrounding the whole town by adopting the system to each house. This town may be a pioneer of the future towns where the integrated-type photovoltaic system will be used ordinarily, when the system becomes more popular in the future.

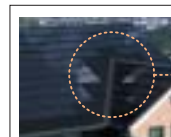
The similar towns are being constructed one after another in Japan.

“Cosmo town Kiyomino-Saizu” is attracting a great deal of attention as the largest photovoltaic town in Japan since starting work. Not only customers who considered buying the houses but also a lot of media visited to

Imaginary cross-sectional illustration of thin-film-silicon-hybrid solar cell



An example in a complicated shape of roof



Our products can be easily applied to a complicated shape of roof.

#### Specifications

Type	PVX-10-001
Module	Thin-film-silicon-hybrid
Nominal maximum output	37.5W
Nominal maximum output voltage	100V
Nominal maximum output current	0.375A
Nominal open voltage	130V
Nominal short circuit current	0.434A
Dimensions	W910×H439×T20( mm )
Weight	7.3kg

\* T: nominal height when installed

demolished. We adopted the structural design in which assembling and disassembling are easy in order to collect separately by part of Ecolony.



物件所在地: 埼玉県吉川市

see the town. Since then, the similar towns are being constructed in Japan.

#### The outline and effects of the system introduced

integrated-type photovoltaic system Kubota’s roofing material Ecolony generating electric power

estimated amount of generating electric power annually 223,000 kWh/year

reduced amount of crude oil consumption 54,000 ℓ/year ( 0.243ℓ per 1 kWh )

Keiyo plant and Kyuhoji plant received the presidential award of the promotion conference in the award of the men of merits for the promotion of reducing, reusing, and recycling. ( October 2002 )

Kyuhoji plant and Ohama plant received the director general award of Agency for Natural Resources and Energy ( in the field of electricity ), and the director general award of Kinki Bureau of Economy and Industry respectively in the award of excellent energy control plant. ( February 2003 )



## Socially responsible investment ( SRI ) and Eco-fund

Kubota's stock is invested by the funds as shown blow.

Dow Jones Sustainability Index
FTSE4Good Global Index
UBS Japan stock eco-fund "Eco-doctor"
Eco-balance ( The sea and sky ) ( Sumitomo Mitsui asset management )
Nikko Eco-fund

## History of Kubota's environmental conservation activities

Fiscal year

- 2002 \* Environmental audit system revised and its resumption ( including our main affiliates )
- 2001 \* Global Environmental Charter revised, Voluntary Environmental Action Plan drafted
- 2000 \* ISO14001 certificate acquired in all of our plants in Japan
- 1999 \* Publishing the first environmental report
- 1998 \* Environmental awareness questionnaire distributed to all Kubota employees
  - \* Environmental household accounting program initiated
- 1997 \* ISO 14001 certificate acquired ( in Tsukuba plant and Shin-yodogawa Environmental plant center )
- 1996 \* Environmental home page up loaded
- 1995 \* Environmental management regulations revised
- 1994 \* Environmental audit system reviewed and supplemented
- 1993 \* Voluntary Plan on Environment drafted
- 1992 \* Global Environmental Charter drafted
  - \* Global Environmental Committee established
  - \* The first Global Environmental Prize awarded by Sankei Newspaper
- 1991 \* In-house Environmental Achievement Award established
  - \* Ranked the first place in Nikkei Business Environment rankings
- 1990 \* Kubota's second-century-from-foundation vision "Company contributing global environmental conservation", and company slogan "Let us make beautiful Japan" drafted
- 1984 \* Managerial organization of working environment reinforced
- 1978 \* Pollution Management Department renamed the Environmental Protection Department
- 1973 \* Central Pollution Patrol ( Audit ) set up
- 1972 \* Pollution Management Department set up at head office; Pollution Management Sections set up in all plants

## Glossary of Terminology

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### LCA ( Life Cycle Assessment )

This refers to quantitatively analyzing the load to environment by a product over its entire life cycle, starting with the resources used for the product, and continuing through the manufacturing, processing, marketing, using, recycling, and disposal stages. It is used as an approach to improve environment.

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### Zero Emission

This refers to the activities designed to completely eliminate wastes, which cannot be re-used as resources. Actually, the total elimination of wastes is impossible, so many companies are aiming at the elimination of the wastes which are dumped into landfills.

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### Green Procurement and Purchasing

Purchasing preferentially products or services with less environmental load from the vendors promoting the reduction of environmental load

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### SI prefix

n ( nano ): 10<sup>-9</sup>  
p ( pico ): 10<sup>-12</sup>

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### TEQ ( Toxic Equivalents )

Dioxins amount converted into the most toxic 2,3,7,8 tetrachloro-dibenzo-p-dioxins

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### BOD ( Biochemical Oxygen Demand )

BOD is an index used to define water pollution by organic substances. It is calculated based on the amount of oxygen required for oxidized decomposition, by microorganisms, of organic substances in the water.

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### COD ( Chemical Oxygen Demand )

COD is an index used to define water pollution by organic substances. It is calculated based on the amount of oxygen required for oxidized decomposition of organic substances in the water.

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### No. 1 Control Area

Condition in which working environment management is considered to be proper

### No. 2 Control Area

Condition in which working environment management is considered to have room for improvement

### No. 3 Control Area

Condition in which working environment management is considered not to be proper

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### PRTR ( Pollutant Release and Transfer Register )

This is a register voluntarily submitted to the government by companies that monitor emission released into environment ( air, water or soil ) by plants operations, and the amount of substances transferred as wastes.