

# Our Business

We, through creation of products, aim to be a company needed by nature, society, and people.

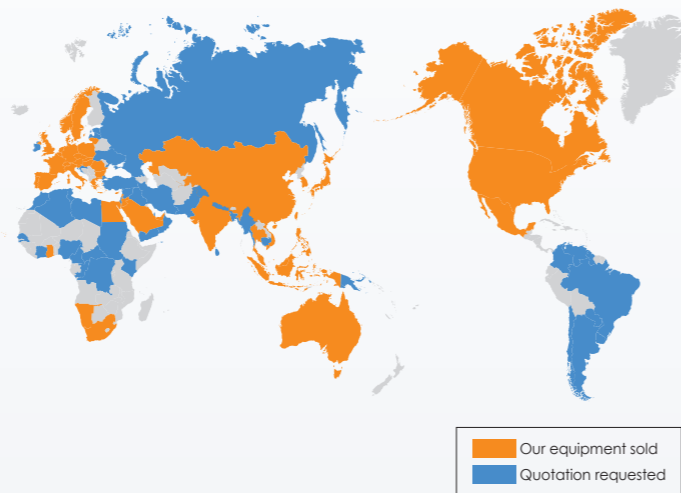
## Machinery Business

### Photovoltaic module manufacturing equipment

We provide all the equipment necessary for producing photovoltaic (PV) modules as a standalone or a total assembly line. Accordingly we can provide one-stop service for our customers.

As we have proactively expanded our business overseas and acquired customers throughout the world since the early stage of the PV industry, we are the leading global company in the module manufacturing process.

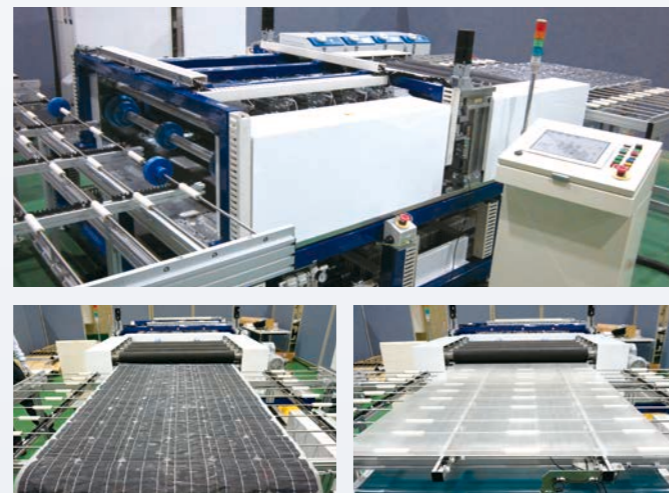
In this fiscal year, we will focus on R&D of Tabbing & Stringing Machines that correspond to new or specially shaped cells, new materials, etc. and Module Laminators for large-size panels or enabling stress reduction from materials in order to provide equipment that satisfies new and existing customers.



### Panel recycling equipment

Whilst installation of numerous PV panels has been proceeding in Japan, end-of-life panels are forecast to amount to 800,000 tons in 2040. In addition, many panels damaged by typhoons, floods or other calamities and low-quality panels have been discarded. On the other hand, valuables used in panels have been simply crushed as industrial waste without being collected because there is no panel recycling method established so far.

Under such circumstances, we have developed panel disassembly equipment. EVA/Glass separating equipment raises recyclability by separating glass from EVA/cell sheet with a heated cutter unit, without crushing glass. We will continue R&D to improve its functions and cost structure.



# CSR Report

For Customers & Environment

## New businesses

### PV panel reuse/recycling

We have continued R&D of PV panel recycling technology since 2014 for effective use of resources and reduction of environmental load. Through our joint venture, PV Techno Cycle Incorporated, established in August 2016, we have been aiming at early establishment of reuse & recycling schemes.

### Collaboration with other leading companies

Our PV panel inspection equipment has been highly evaluated in the industry for its accuracy and ease of use since 2013. We will develop new business schemes for collaboration with other leading companies by utilizing the inspection technology.

### PV systems at Matsuyama Factory

We have installed the panels of 9 Japanese PV manufacturers, 10kW each, on the rooftop of the Matsuyama Factory office building. On the Building C rooftop, about 300kW PV system has been operating. The 2 systems are calculated to reduce approximately 120 tons of CO<sub>2</sub> annually.

They not only contribute to resource and energy savings, but also are utilized for inspection service training given to Solar Wellness inspection network partners and



## Environmental Business

### PV panel inspection equipment

#### Multi-functional high-speed I-V measuring system "Rakit"

Rakit, coming with high-speed pyranometer, thermocouple and data logger, automatically adjusts the measured I-V data to those under STC and issues accurate analysis report by our original software, I-V data analyzer. We offer 3 versions of this software corresponding separately to 3 I-V tracers and adopting cloud computing so that customers can operate anywhere with internet environment. This system promotes operation and maintenance of PV systems by saving inspection time and providing detailed analysis report.

#### On-site EL/PL inspection machine "EPTiF"

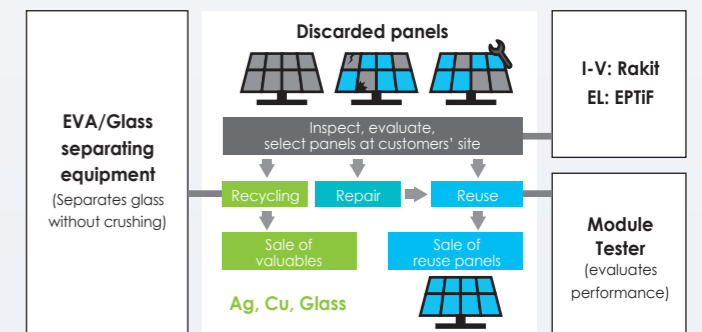
EPTiF uses the EL (electro luminescence) images and clearly shows the faulty areas by darkness of PV panel images taken. It is the world's only inspection equipment that has enabled EL inspection in the daylight without removing PV panels. Customers can quickly deal with troubles in the PV system by finding faulty areas and their causes.

### PV panel reuse/recycling service

Hamada Co., Ltd. (HQ: Osaka) and NPC Inc. established a joint venture, PV Techno Cycle inc., in August 2016 for PV panel reuse/recycling business. They collect and inspect discarded panels with our inspection equipment to see if they are suitable for reuse. If so, they sell the panels as reuse products. If not, they recycle the panels with our disassembly equipment.

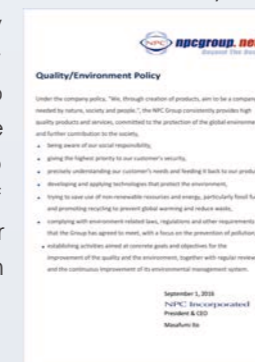
### PV panel inspection service

We provide inspection service of PV panels using Rakit and EPTiF. I-V measurement, EL inspection, the two inspections combined, and customized inspection are available. In this fiscal year, we have expanded the inspection menu for systems under 50kW. This service greatly helps maintaining customers' asset value.



## ISO14001

We obtained ISO14001 certificate in 2005 to contribute to the protection of the global environment. At the Matsuyama Factory, we have continuously thrived to improve our daily operations by regular reviews, to adopt the methods that will reduce environmental load. We also started integral operation of ISO14001 and ISO9001 in September 2016 to treat them simultaneously in daily management.



Environmental Targets for 2016		Department	Result
Improvement in fuel efficiency of company cars	Gasoline: 12.5km/t	Matsuyama Factory	○
	Diesel: 6.0km/t		○
Reduction in the number of OA paper disposal		Business Management Group	○
		Designing Dept.	○
Reduction in fuel costs related to changes at site		Electrical Designing Dept.	○
Prevention of extra components usage		Engineering Management Dept.	○
Reduction in the number of CD disposal		Engineering Management Dept.	△(※)
Reduction in scrap components by improved yield rate		Module Assembly Dept.	○
Reduction in damaged components of equipment		Equipment Manufacturing Dept.	○
Establishment of PV panel recycling technology		R&D Dept.	○
Sales of 48 PV plants maintenance services and 48 sets of inspection equipment		Environmental Products Sales Dept.	○

※achieved the goal on pieces basis but not on share basis