



**NPC incorporated**

# **Business Plan and Potential for Growth**

**December 2023**

**NPC Incorporated  
(TSE:6255)**

1. Business Model
2. Market Environment
3. Competitiveness
4. Business Plan
5. Risk Information

## Company Policy

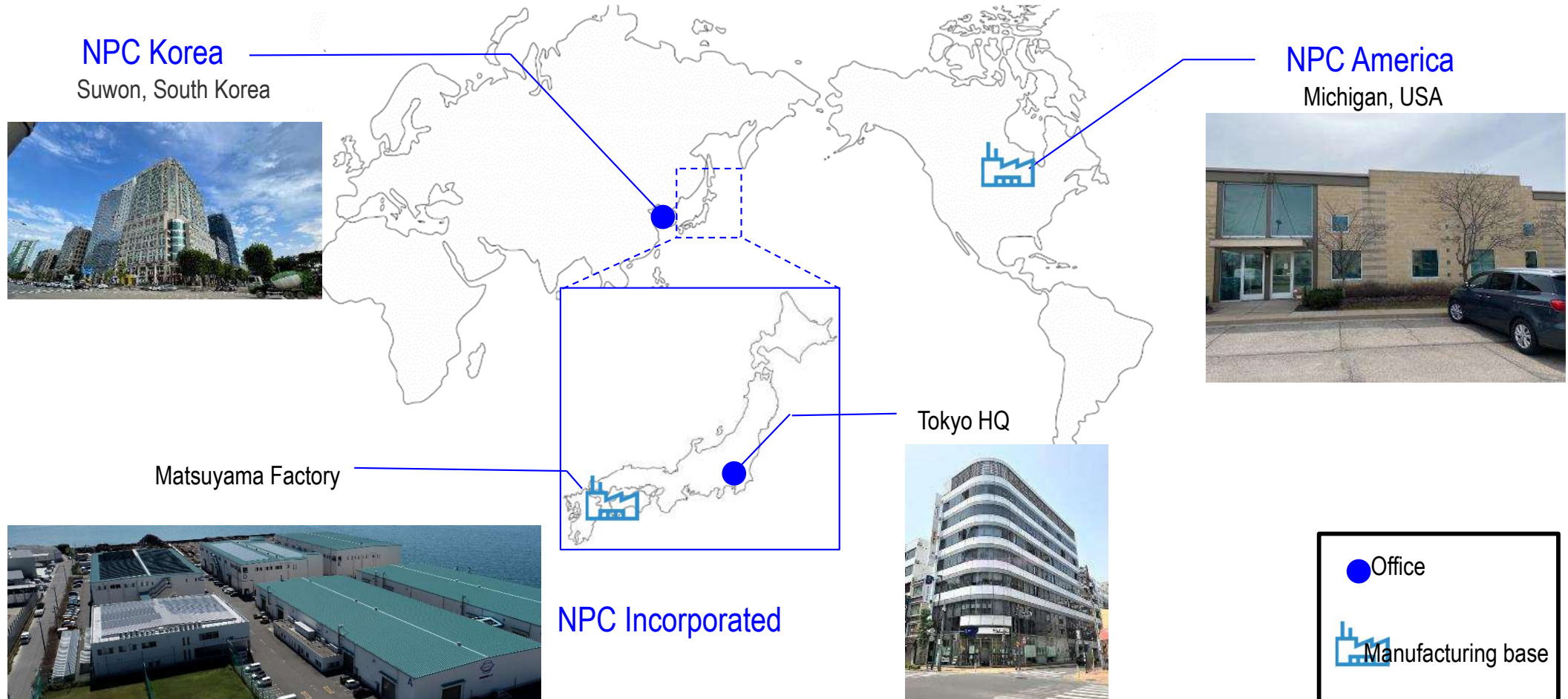
We, through creation of products,  
aim to be a company needed by nature, society, and people.

Matsuyama  
Factory

Company Name	: NPC Incorporated
Establishment	: December 1992
Activity Bases	: Tokyo Headquarters/ 1-7-15 Higashi-ueno, Taito-ku, Tokyo Matsuyama Factory/ 2889 Nishihabu-machi, Matsuyama-shi, Ehime
Capital	: 2,812 million yen (as of August 2023)
Employee	: 157 (consolidated) (as of August 2023)
Fiscal year end	: August 31
Stock Market	: TSE Growth
Stock code	: 6255

# Group Network

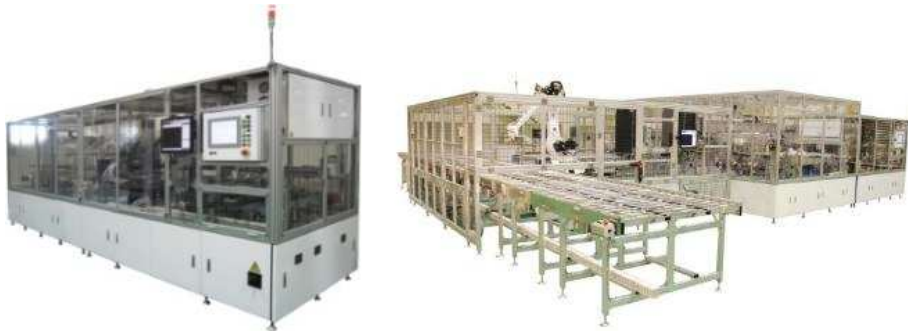
Name	Function	Employee
NPC Incorporated	Sales, Procurement, R&D, Design, Manufacturing, O&M	154
NPC America Automation Inc. (consolidated subsidiary)	Sales, Design, Manufacturing, O&M	3
NPC Korea Co., Ltd. (non-consolidated subsidiary)	Sales, Procurement	1





## Machinery Business

■ PV module manufacturing equipment



■ Automation machines



■ Vacuum related equipment



## Environmental Business

■ Inspection service for solar power plants



■ Reuse/recycling of PV panels



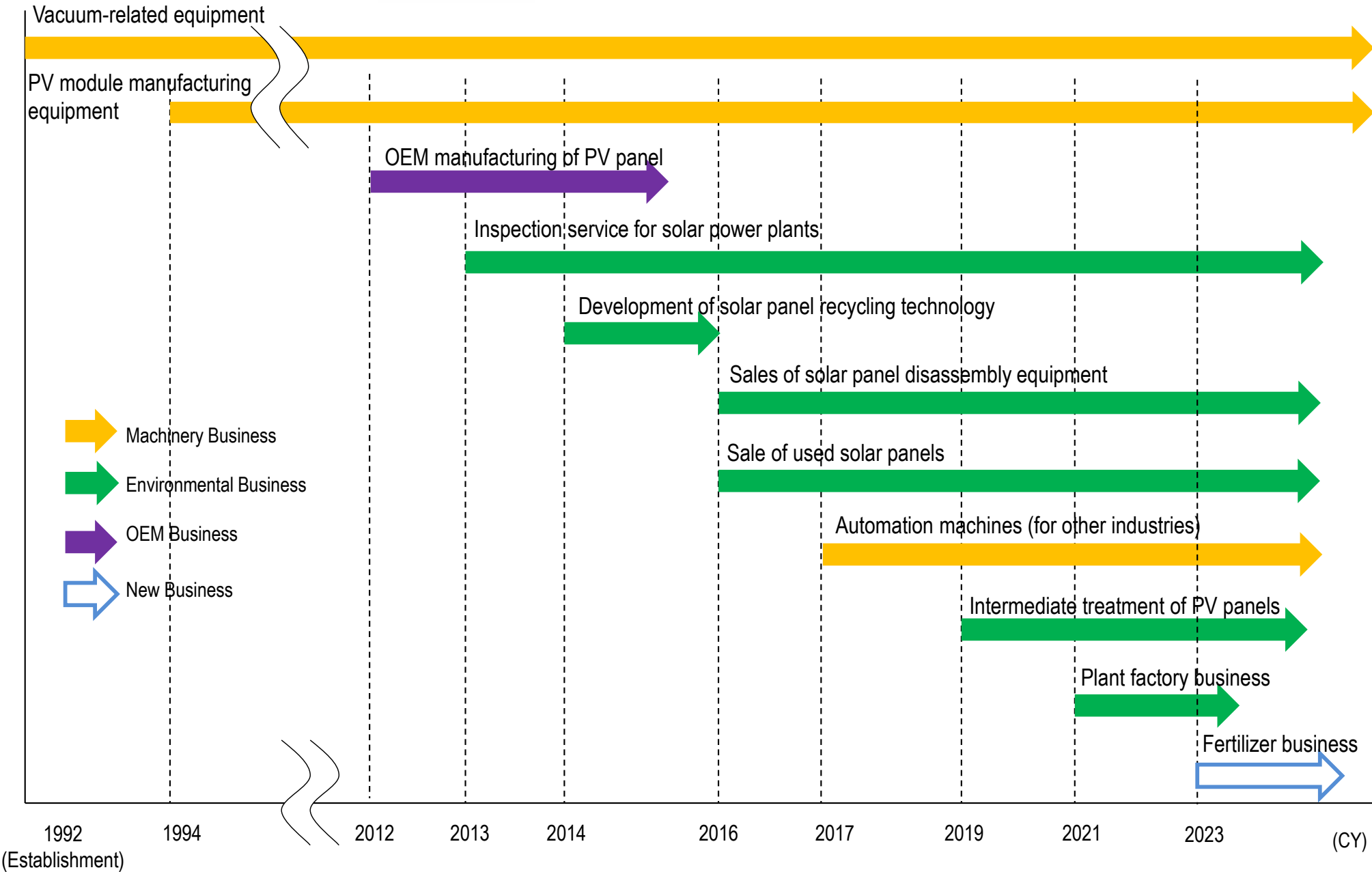
■ PV panel disassembly equipment



■ Plant factory business



# History of Business Expansion



# Target of Each Business

## NPC Incorporated



Manufacturing of equipment



Solar panel recycling



Plant factory

PV module manufacturing equipment



Automation machines,  
Vacuum-related machines



Solar panel disassembly equipment



Inspection service for solar power plants



Collection and reuse sale of used  
solar panes



Glass, aluminum, copper wire, etc.

## Companies

PV module manufacturers

Electronic parts companies  
Automobile-related  
companies  
Display-related companies  
Food companies

Waste management  
companies

solar power plants  
EPC  
Constructors

Recycling companies

## General consumers (within Ehime pref.)

(Retail business)  
Supermarkets  
Delicatessens

(Food service)  
Restaurants  
Hotels

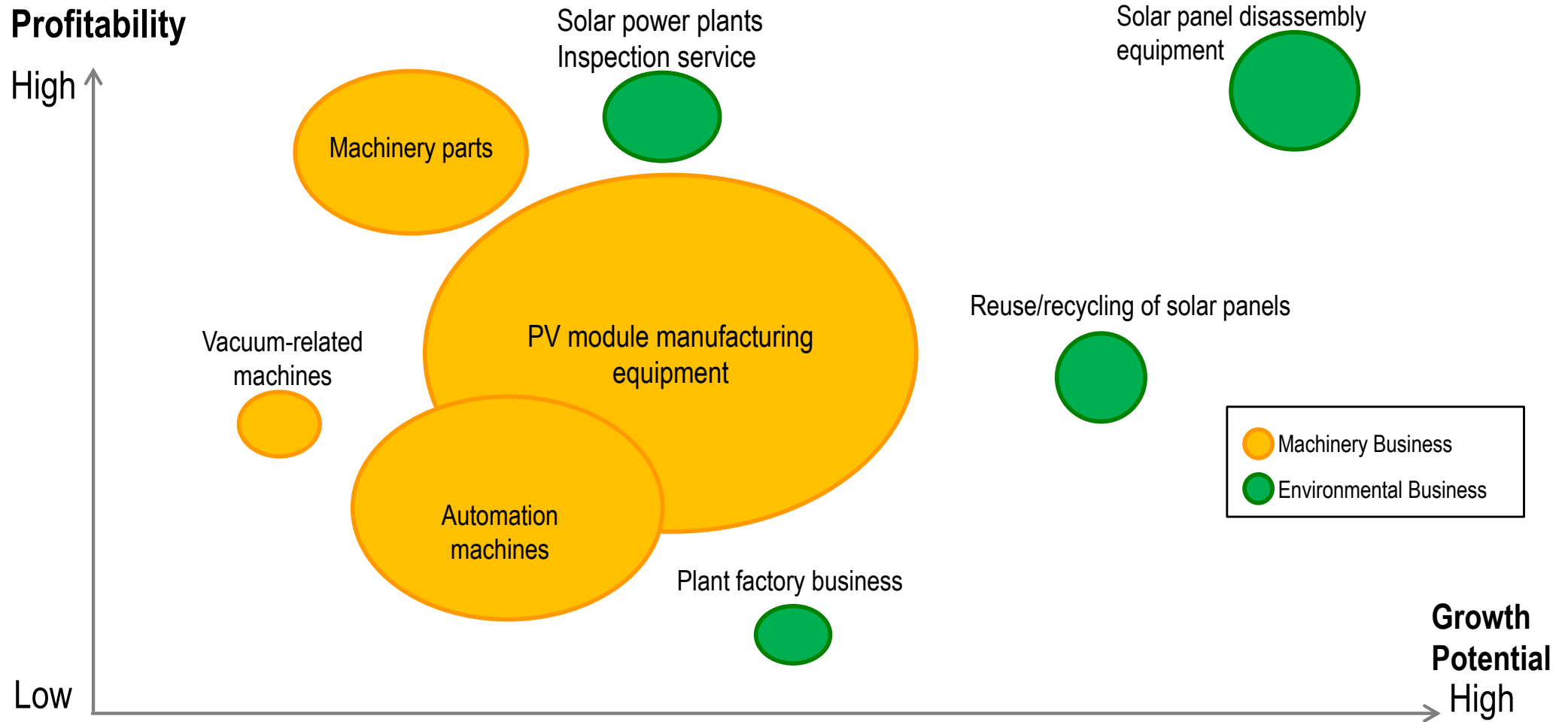
Food processing  
companies



Vegetables

← Machinery Business  
← Environmental Business

# Business scale, growth potential, and profitability of our products and services



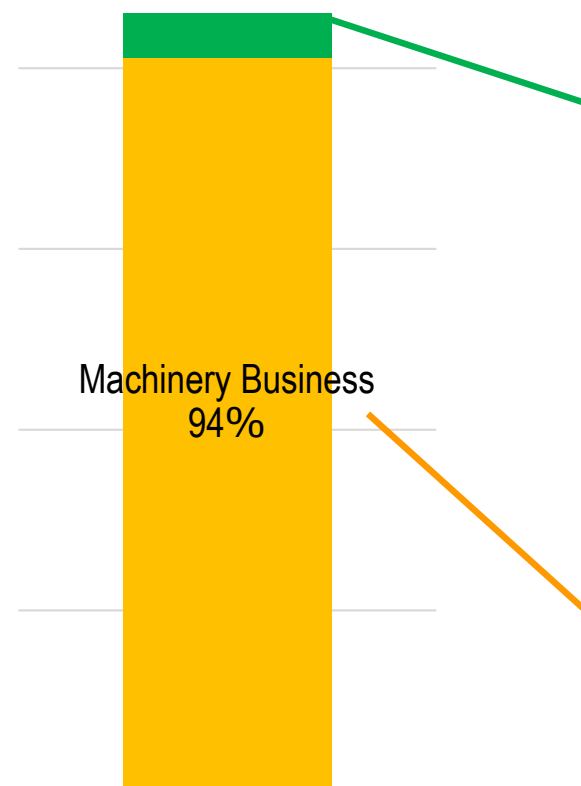
- The weighted average gross profit margin for past 5 years: 24.6% for the Machinery Business and 31.2% for the Environmental Business.
- PV module manufacturing equipment is relatively profitable in the Machinery Business as we can take advantage of our 30 years' experience in the industry.  
PV module manufacturing equipment business consists of new equipment and upgrading & expansion of existing equipment.  
Profitability of upgrading & expansion is higher than new equipment as they are implemented on our own equipment installed in customers' facilities.
- Automation machines business is less profitable than other business as there are many competitors.
- In the Environmental Business, solar panel disassembly machine has high profit margin as it is equipped with our proprietary technology.  
Solar panel inspection service also has a high profit margin due to our original technology for detailed inspections.
- Benchmark of overall gross profit margin: 25%



# Sales Composition and Profitability of Each Segment

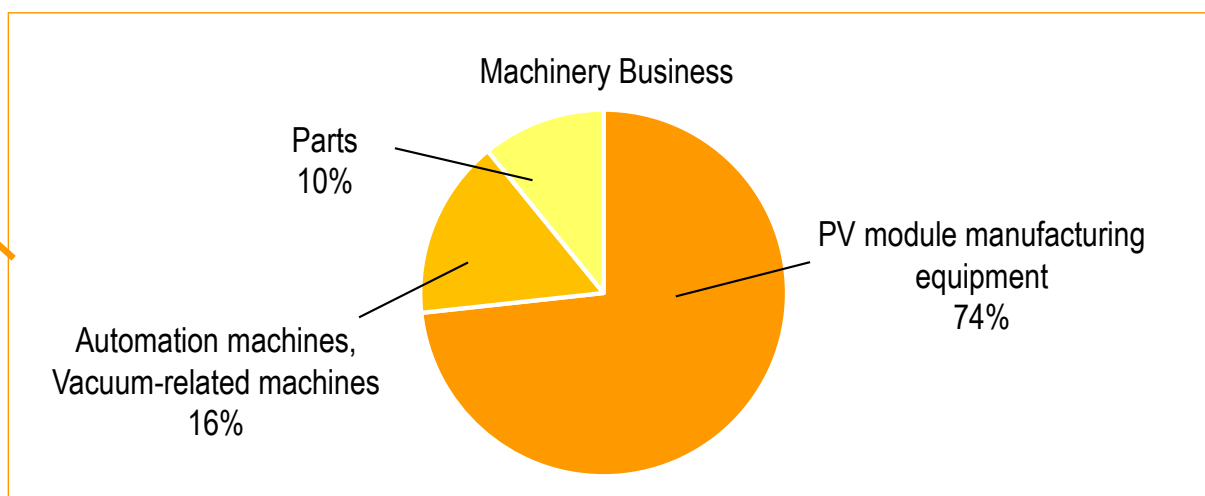
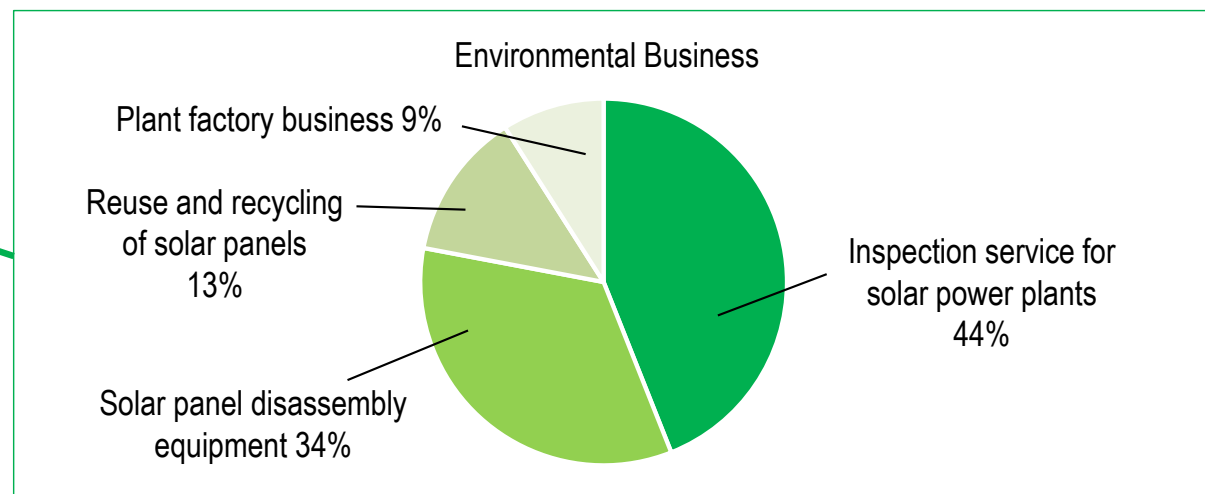
## Sales breakdown of past 3 years

Environmental Business 6%



Machinery Business  
94%

Sales



### 【Notes】

- The numbers related to sales in the above graphs are based on the accumulated sales amount from FY2021 to FY2023 (JPY 21,520 million).

1. Business Model
2. Market Environment
3. Source of Competitiveness
4. Business Plan
5. Risk Information

# Machinery Business

## PV module manufacturing equipment (1)

PV modules to which our manufacturing equipment is targeted

### Thin-film PV modules

NPC's target

Next-generation PV modules  
such as perovskite



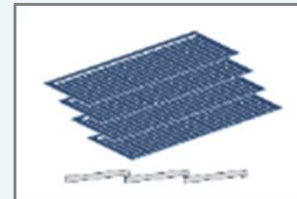
Thin-film (CdTe) PV modules



### Crystalline PV modules

PV modules for special use

Building-integrated modules



Module for satellites



General crystalline modules



We offer custom-made high-end manufacturing equipment, which is required to manufacture thin film modules and special-purpose crystalline modules (such as BIPV modules and satellite solar modules). As an equipment manufacturer in this field, we have no specific competitor.

Our main customers are PV module manufacturers in the US and Japan. Among other companies, we have done business with our largest customer, US-based First Solar (listed on NASDAQ), for nearly 20 years.

We also target next-generation PV modules such as perovskite PV. Perovskite stands for a name of a crystal structure. Using this structure, PV modules can be manufactured with coating technology at low-cost. As this technology enables soft and light-weight PV modules which can be installed where crystalline modules cannot be installed, it is regarded as a key technology in energy transition. Researches are underway for mass production.

Crystalline modules account for approximately 90% of PV module market.

They are used for purposes such as mega solar power plants or general in-house power generation and mainly manufactured by Chinese and Korean PV module manufacturers.

In addition, the manufacturing process for general panels is standardized and Chinese equipment manufacturers provide manufacturing equipment. We do not offer manufacturing equipment for these modules.

# Machinery Business

## PV module manufacturing equipment (2)

### US PV Market

US PV market is the second largest in the world.

Inflation Reduction Act (IRA) was signed into law in August 2022

- Invests USD 370 billion in anti-climate change measure for next 10 years.
- Supports domestic PV-related manufacturing for independence of PV supply chain.

#### After the establishment of IRA

- Estimation of US PV market growth improved by 40%.  
High growth is expected for mid to long term. (See the right graph)
- PV installation is expected to accelerate due to PV Investment Tax Credit.
- Capital expenditure has become active at US PV manufacturers such as First Solar as the law includes Manufacturing Tax Credit.

### US major customer

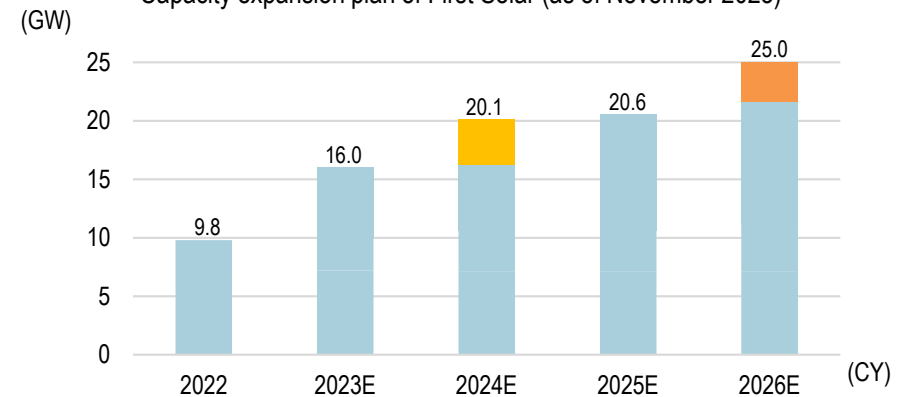
First Solar:

- No. 8 shipment in the world (2022)  
(No. 1 production & shipment as a thin-film PV manufacturer)

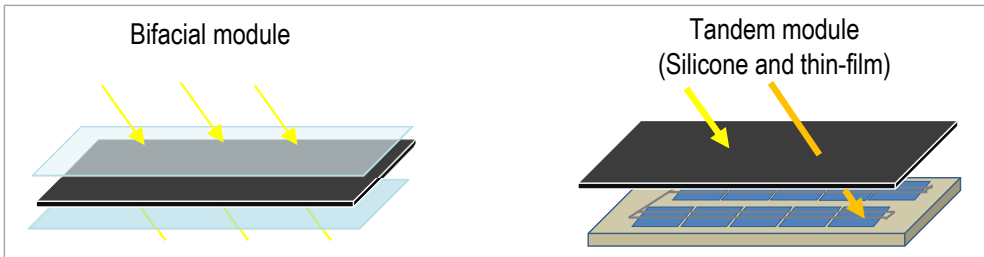
-NPC has provided equipment for all the factories that are in operation.  
Other than sales of equipment for new factories, there is also continuous business such as upgrading of equipment in operation and parts sales.

-First Solar has a record order backlog (81.8GW) backed by the favorable market environment.  
Capital expenditure for capacity expansion of standard products and R&D for new products is expected to continue in response to the strong demand.

Capacity expansion plan of First Solar (as of November 2023)



First Solar's R&D

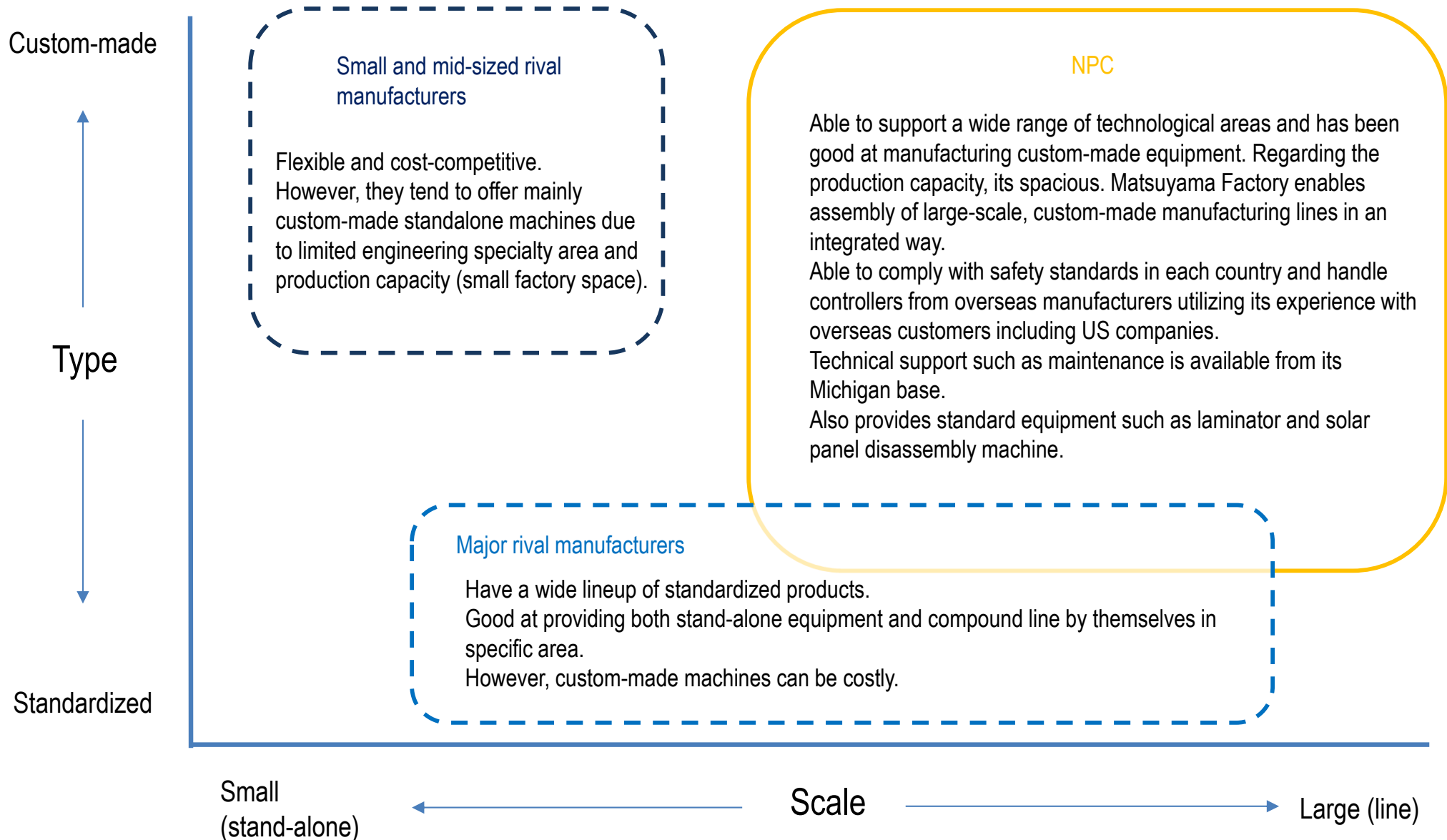


In operation	Ohio, USA (3 lines) Malaysia Vietnam (2 lines) India
2024	Ohio (expansion), Alabama (new factory)
2026	Louisiana (new factory)



## Automation Machines, Vacuum-related equipment (1)


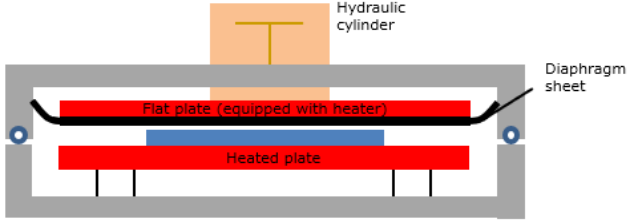

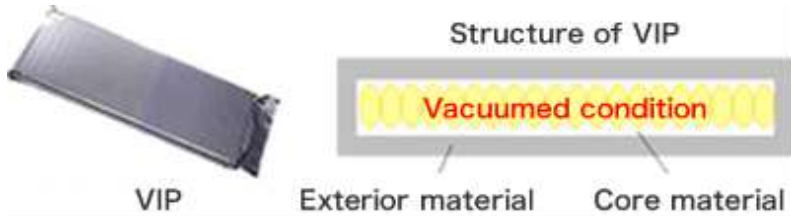
Strong area of Japanese rival manufacturers and NPC



# Machinery Business

## Automation Machines, Vacuum-related equipment (2)

### Lineups of vacuum-related equipment

<p>Vacuum laminator</p> 	<p>Equipped with an original laminating technology that combines diaphragm and flat plate press technology</p> 	<p>Application</p> <ul style="list-style-type: none"> <li>-PV module</li> <li>-Electric parts</li> <li>-Laminated glass etc.</li> </ul>
<p>VIP sealing machine</p> 	<p>The vacuum insulation panel (VIP) is applied to energy saving refrigerators and vending machines, helping to reduce environmental load. Research on using the material for buildings is progressing.</p> 	<p>Application</p> <ul style="list-style-type: none"> <li>-VIP sealing</li> </ul>

- Vacuum-related machines are used for product development as they have wide application such as layering, laminating, sealing, and forming. There are some manufacturers in Japan and overseas that manufacture similar products.
- Easy to secure profits as it is standard products with NPC's core technology.

# Environmental Business

## Inspection Service of Solar Power Plants(1)

### Statutory inspection

Visual check  
Ground resistance measurement  
Ground continuity test  
Insulation resistance measurement  
Dielectric strength test



### Voluntary inspection/services

High cost →

Service for quality improvement



Weeding

Simplified test  
(fault detection)



Panel cleansing



Drone IR inspection

Precise inspection  
(fault identification)



I-V characteristic inspection



EL inspection

Number of competitors

Numerous (small and mid-sized electric companies and local engineering firms, etc.)

Few

Very few

NPC's service coverage

- Although inspection service mainly targets legal inspection for large-scale solar power plants, there is a wide range of voluntary inspection menu.  
NPC can provide not only legal inspection service, but also various voluntary inspection service.  
Especially, it has various original technologies for precise inspection;  
Technology that speeds up I-V inspection (patented) and  
Technology that realizes the same EL inspection performed before shipment of solar panel in outdoor environment.
- Although many competitors offer statutory inspections and simple inspections, we can inspect power plants across Japan with the same quality through our nationwide inspection network, Solar Wellness. We also provide customers with a report that contains our proprietary expertise after inspection to differentiate us from our competitors.

## Inspection service for solar power plants (2)

### Market size of inspection service

	Existing market	New market
Type of inspection	Projects approved under FIT	Non-FIT projects
Pre-operation self-inspection	Projects to be built Approx. 15GW	Non-FIT projects such as PPA projects by companies and local governments increase.
Pre-operation self-check	Pre-operation inspection will be implemented when they start operation	Pre-operation self-check (inspection) is obligated to small-sized(10kW to 50kW) solar systems by new law in March 2023.
Regular inspection for projects in operation	Projects in operation Approx. 50GW  Inspections increase as power plants increase.	Inspections increase as power plants increase.

### Inspection implemented

- Projects inspected: 308

\*As of August 31, 2023. Some power plants have been inspected several times.

Business is stabilized with recurring revenue as we receive stable orders from major customers.

<Reference>

Large-sized solar power plants for which we implemented inspections:

Bizen Mega Solar (Okayama) 111MW

Onikoube solar power plant (Miyagi) 146MW

-Inspections performed in last three years

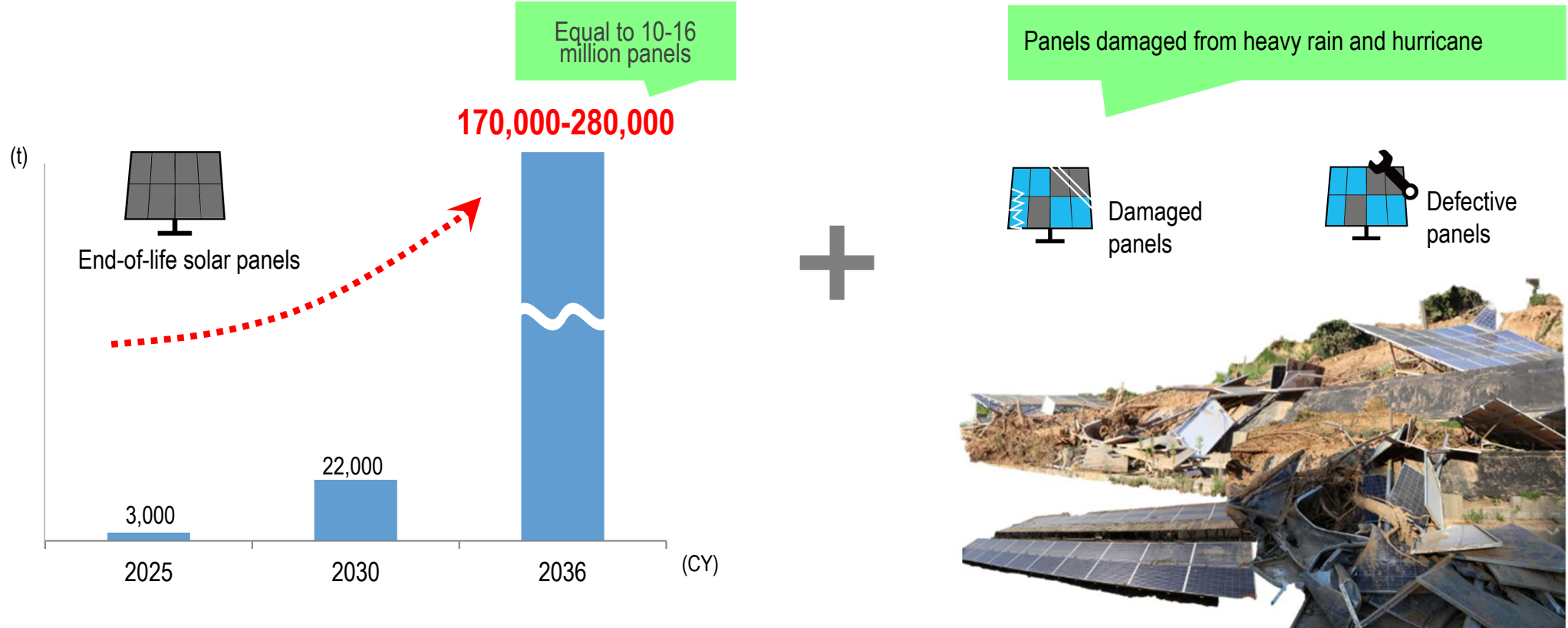
Year	FY2021	FY2022	FY2023
Inspections	34	33	40

- FIT (feed-in tariff) is a system to purchase electricity at fixed prices that began in Japan in 2012, under which utility solar power plants are being installed for the purposes of selling electricity. Many power plants have been approved by the Ministry of Economy, Trade and Industry but have not started operation yet. They are expected to be installed sequentially over the coming years. When these plants are installed, many different voluntary inspections may be conducted as pre-operation inspections in addition to statutory inspections.
- The targeted market of inspection is expanding due to an increase in solar installation for self-consumption by PPA in factories, public facilities, etc., and due to pre-operation self-check, that has become an obligation to small solar systems, the size of which is common to the abovementioned self-consumption projects.
- The size of regular inspection market is proportional to the total number of power plants that have started operation.  
In the future, the total number of plants installed through FIT projects will continue to increase. In addition, the demand for in-house consumption of solar power is expanding as a new market, resulting in an increase in solar power systems installed at factories, public facilities and other locations. The scope of statutory inspections is also expected to expand and apply to small-scale solar power systems in the future. This means that the size of regular inspection market will continue to expand.



## Reuse and Recycling of Solar Panels (Disassembly Service)

Estimation of the number of panels to be discarded in Japan



(Source: *Disposal of Solar Power-Generating Facilities*, Agency for Natural Resources and Energy, November 21, 2018)

- The figure on the left shows the estimation made by the Ministry of Economy, Trade and Industry (Agency for Natural Resources and Energy). For this estimation, only the panels to be discarded after the 20-year purchase period in FIT projects on lease land are counted. In Japan, the number of discarded panels is expected to rapidly increase after around 2030 when FIT starts to expire.
- The figure on the left does not include panels damaged by disasters and defective panels. Therefore, in reality, a large number of panels can actually be discarded at an earlier date.

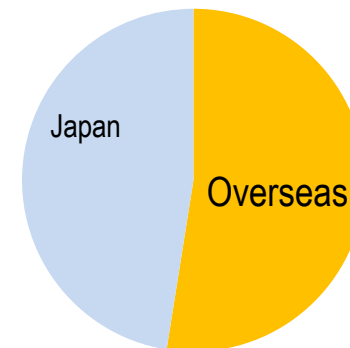
# Environmental Business

## Solar Panel Reuse

### Demand trends and past results of reused solar panels



Destinations of reused panels



- Our advantages over competitors are as follows.

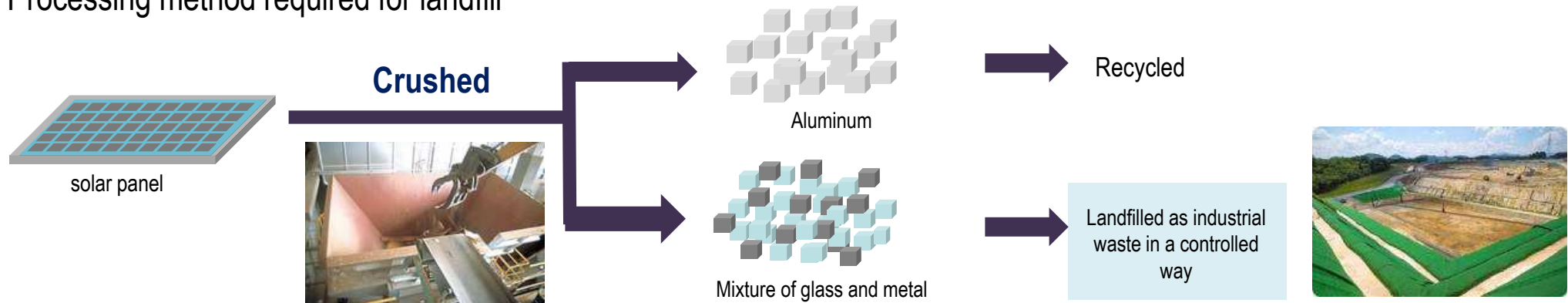
- (1) Best cost deals (minimum safety inspection, no warranty in principle, and direct distribution)
- (2) Reliability based on deep insights on and experience with solar panels (We have not dealt in low-quality panels.)
- (3) Network in the industry built through inspection services for solar power plants (about 1,000 companies)

- Of the needs of sellers, most replaced solar panels and unused solar panels in stock were collected by around 2019. Although solar panels submerged or otherwise damaged by disasters are now primarily sold, there are currently not many solar panels damaged by disasters. To obtain solar panels damaged by disasters, we work with insurance companies and signed an agreement with Shikoku Electrical Safety Inspection Association to quickly acquire information.

# Environmental Business

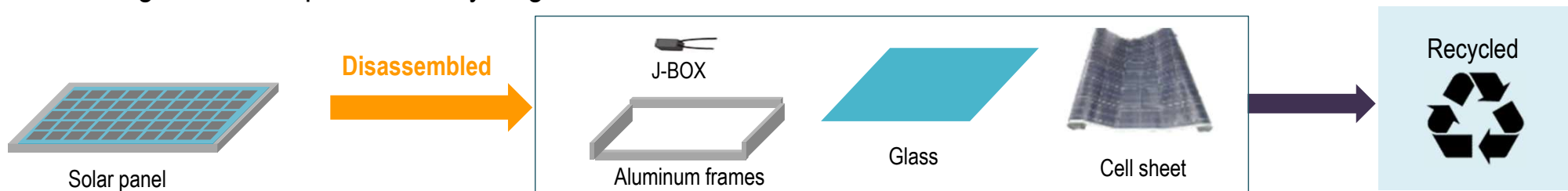
## Solar Panel Recycling (Disassembly of Solar Panels)

### ■ Processing method required for landfill



Solar panels have a robust structure focused on durability and sealability and are difficult to disassemble. In particular, the glass part and the metal part are laminated using resin (EVA) and very difficult to separate. Therefore, solar panels are crushed with a shredder, which generates a mixture of glass and metal. As a result, most parts are unrecyclable and landfilled in many cases though some materials such as aluminum used in the frame are recycled. Because hazardous substances such as lead are used in the solar panel manufacturing process, they must be landfilled at a controlled final disposal site. This leads to landfill facilities running out of space in the future, a large environmental impact and high costs.

### ■ Processing method required for recycling



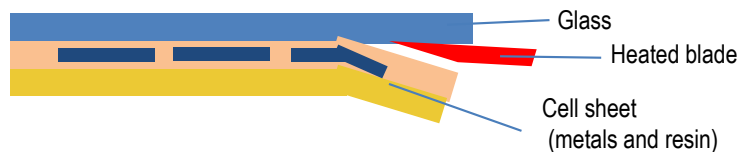
Glass accounts for a large part of the panel weight. Other components such as aluminum frames, silicon cells and copper wires contain metals. Because glass and metals are processed and recycled in different ways, it is important to first separate glass and metals to recycle solar panels. Collected glass can be reused, for example, as civil engineering material or sandbags. Collected metals are recycled at refineries and other facilities. At NPC, we automatically remove the J-BOX and aluminum frames from the solar panel and separate the part of glass and cell sheet laminated with resin using our original method called "heated blade separation method".

# Environmental Business

## Solar Panel Disassembly Equipment (1)

### Examples of recycling methods

Method	Processing method and other details	Main equipment manufacturers
<b>Heated blade separation method</b>	Method to separate glass and cell sheet, which contains silicon and other metals, using a blade heated to about 300°C. Glass is collected as sheet glass.	<b>NPC Incorporated</b>
Crushing	Method to physically crush solar panel glass using a tool such as hammer or roller and remove the glass part.	Kankyo Hozen Service Co., Ltd., Tiger-Chiyoda Machinery Co., Ltd., Kinki Industrial Co., Ltd., and Donico Inter Co., Ltd.
Blasting	Method to fix the solar panel, spray abrasive to crush glass, and scrape it away.	Mirai Sozo K.K.
Heat treatment	Method to put the solar panel in the furnace, pyrolyze the sealer (resin) at a high temperature of several hundred degrees and remove glass and metal.	Shinryo Corporation and Niimi Solar Company



Glass



Glass from broken solar panel



Cell sheet

(Source: Research by NPC)

### Features and advantages of the heated blade separation method

- NPC proprietary treatment method with 4 patents. No competitors with the same technology.
- High recyclability as glass can be collected as sheet glass and metals do not mix in.
- Energy-saving and rapid treatment (a solar panel is processed in 60 seconds).



# Environmental Business

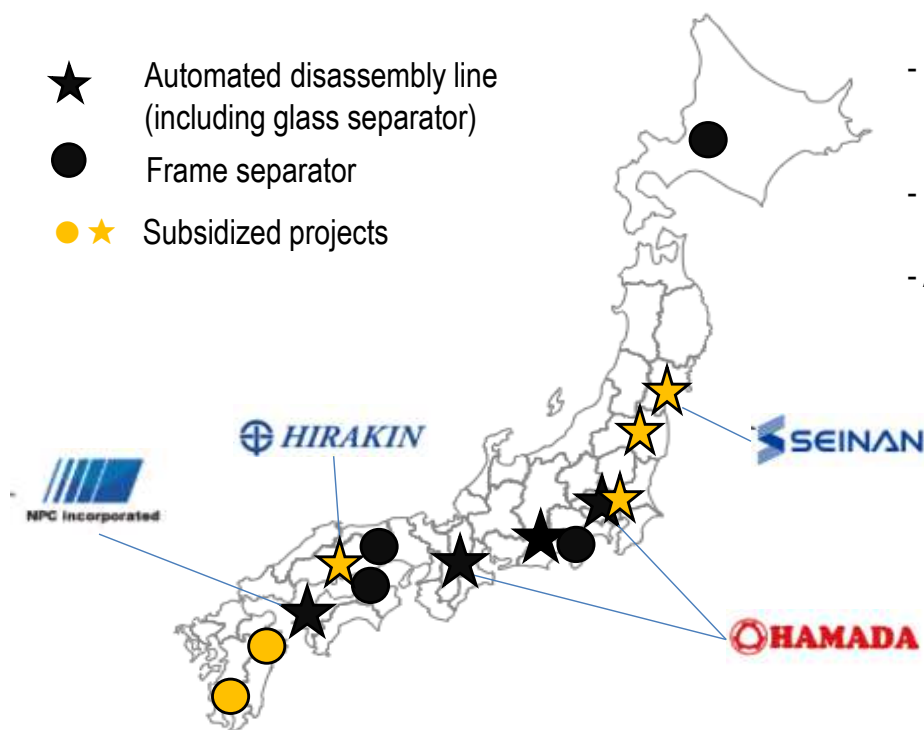
## Solar Panel Disassembly Equipment (2)

### Achievements as of FY 2023 and targeted market

Region/ Type of equipment	Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Overseas			Total
									Europe	North America	Australia	
Frame separator	1			(1)		(1)	1	(2)	1	1 (1)		4+(5)=9
Glass separator			1	(1)	1							2+(1)=3
Automated disassembly line		2	1			1			1		(1)	5+(1)=6

Note: Number of machines sold. Numbers in parentheses represent orders.

- ★ Automated disassembly line (including glass separator)
- Frame separator
- ★ Subsidized projects



- Japan: continued introduction of equipment using subsidies from the Ministry of the Environment, Ministry of Economy, Trade and Industry, local governments, etc.
- Europe: NPC implemented demonstration of automated line installed at a French company (May and September 2023) . Conduct promotion to waste treatment companies in other European countries utilizing the achievement.
- North America: needs for frame separator is expected to grow faster than the automated line. Enhance sales activities.
- Australia: landfill of end-of-life solar panels is prohibited in some states. Interest in recycling is increasing.

### Differentiation from other equipment

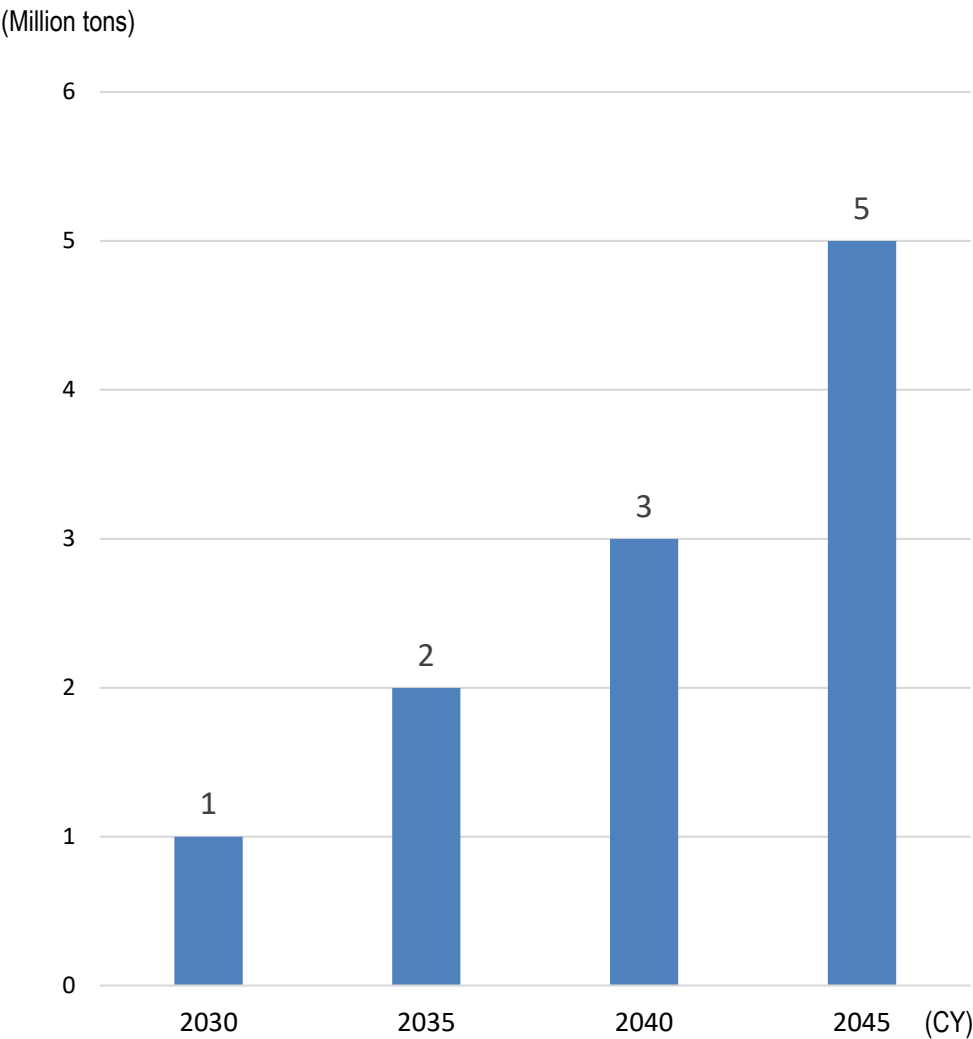
NPC's Heated Blade Separation Method separates glass and metals at a high level. Therefore, separated glass can be sold at a value. A major European glass manufacturer is conducting an evaluation of glass separated with NPC equipment to recycle it into sheet glass.

# Environmental Business

## Solar panel disassembly equipment

### Market

-Estimation of global waste solar panel volume (for each year)



(NPC prepared based on "Status-of-PV-Module-Recycling", IEA PVSP, 2022)

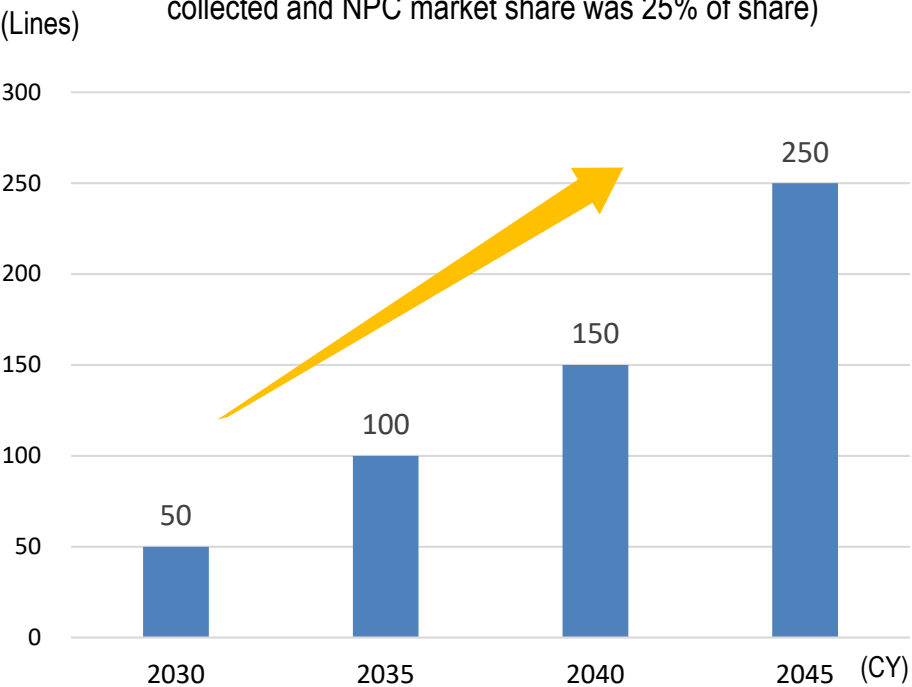
-Capacity of an automated solar panel disassembly line

144 thousand panels per year  
(8 hours x 300 days)  
= 2,500t per year



Lines required based on the of global waste solar panel volume

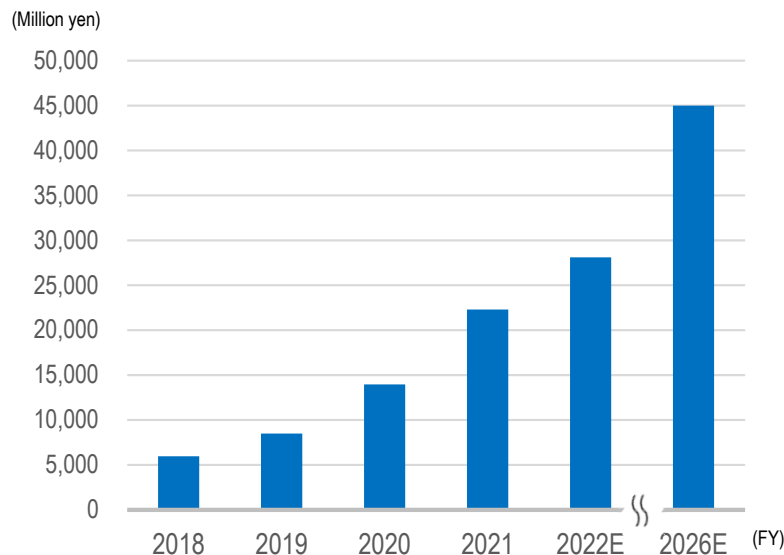
(On the assumption that 50% of end-of-life panel were collected and NPC market share was 25% of share)



# Environmental Business

## Plant factory business

### Scale of the plant factory market

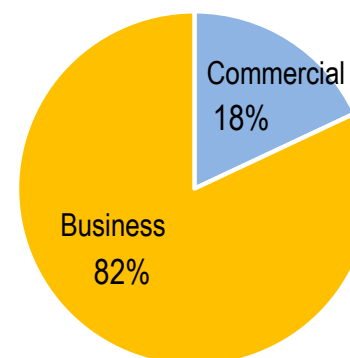


There are stable needs throughout the year for vegetables grown in plant factories. In plant factories, lettuces are mainly grown as they require less light, and they are easy to grow. Meanwhile, cultivation of vegetables with higher added value and popularity such as strawberries and spinach is considered.

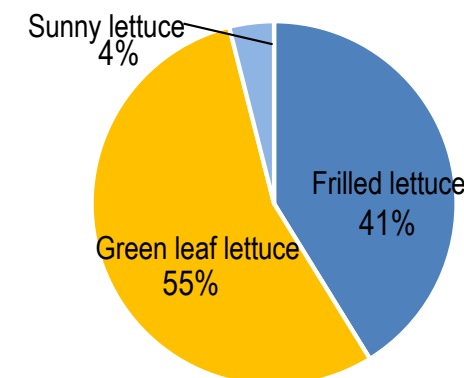
(Source: *The Now and Future of the Plant Factory Market*, Yano Research Institute Ltd., August 202206)

### Sales performance

#### By purpose



#### By item



We installed facilities in building D in the existing factory, reducing depreciation costs.

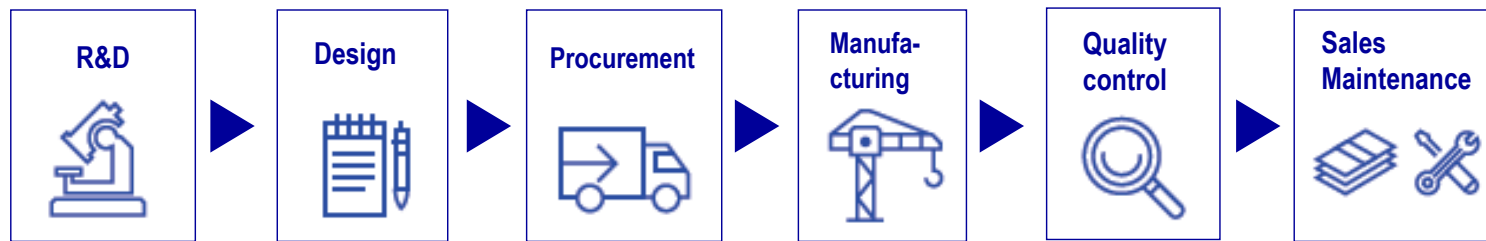
- Plant factories are powered through in-house solar power generation using the rooftop solar power system to reduce utility costs and achieve clean energy production. We employ reused solar panels in the solar power system, establishing a recycling business model.
- As the plant factory market is expanding due to the demand for safe and secure vegetables, we mainly address local needs in Ehime Prefecture. As of the end of FY2022, we achieved full production of 1,100 kg/week and almost all the products have been sold out. The high quality of our lettuce is highly rated as Hakohime brand and sold for commercial use to regular customers. We have also sold this product for consumer use at supermarkets and grocery stores.
- As this business contributes to improve company recognition among the public.
- As the material cost and labor cost have been increasing, and sales price cannot be set to the expected level, the investment in the plant production was booked as an impairment loss under extraordinary loss for the fiscal year 2022. (82 million yen)
- However, there are few competitors in plant factory business in Ehime area and needs for stable supply of vegetables is expected to increase due to climate change. We switch to items with higher added value and reduce cost to continue the business.

1. Business Model
2. Market Environment
3. Source of Competitiveness
4. Business Plan
5. Risk Information



# Production System and Capacity

## Integrated manufacturing system



## Production capacity of Matsuyama Factory

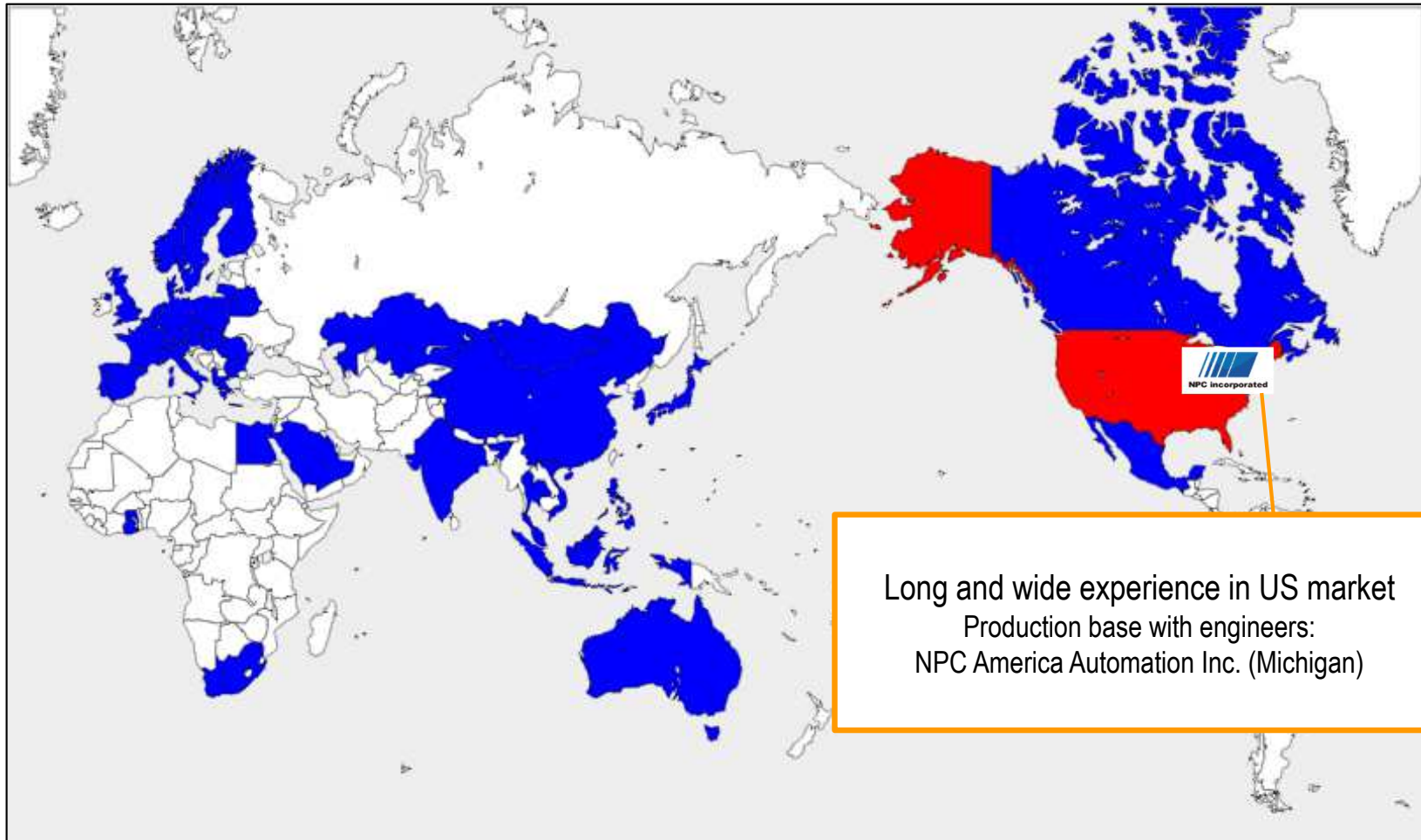


Matsuyama Factory, our production base, has 130 employees and all the manufacturing functions such as R&D, design, manufacturing, and maintenance. This system enables quick and accurate response to requests from customers.

The 5 spacious assembly buildings (height: 8m, area: 40 x 100m) assure vast space for manufacturing any kind of equipment including a large-scale lines.

We enhance production capacity by consigning some assembly work to cooperated companies.

# Overseas Experience and North American Office



Long and wide experience in US market  
Production base with engineers:  
NPC America Automation Inc. (Michigan)

We have delivered equipment to more than 50 countries around the world and met local safety standards including the European CE standards. In particular, we can meet the safety standards required in the U.S. market such as the UL and NEC and manufacture machines using Rockwell controllers as required by U.S. customers based on more than 25 years' experience in the country. In addition, one of our advantages is our manufacturing base with engineers stationed in Michigan, from which we can locally provide technical support and market our products to Japanese companies.



# Wide Range of Technical Strengths and Expertise on Equipment Manufacturing



Inspection/  
Measurement technology



Soldering technology



Dispensing technology



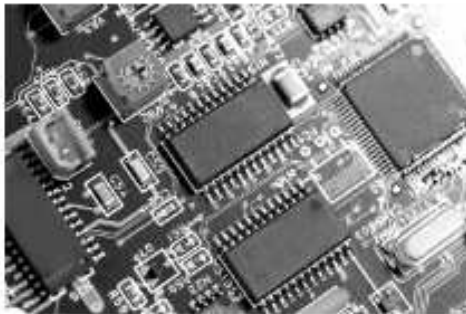
Automated material supply/  
transfer technology



Vacuuming/  
Bonding technology



Data analysis  
technology



Electronic Parts



Display



Automobile



Logistics

Since we entered the PV module industry in 1994, we have developed automation machines for the junction, application, automatic material supply, transfer, image processing and other processes, starting with vacuum laminators based on the vacuum technology, and provided them as an integrated manufacturing line. We now provide equipment as energy-saving solutions in diverse industries including the electronic parts, automotive and display industries by leveraging the technologies and insights we have accumulated for over 25 years to design and manufacture automation machines for industries other than the PV module industry as well.

# A Wide Range of Business Deployment in the Solar Industry

## Manufacturing



Provision of PV module manufacturing equipment

## Inspection & maintenance



Inspection service for solar power plants



Provision of solar panel inspection machines

## Reuse & recycling



Reuse panel sales



Recycling of solar panels



Provision of solar panel disassembly equipment

Starting with PV module manufacturing equipment, we have provided a variety of services for all aspects from the manufacturing of PV modules through recycling of solar panels, offering solar power plant inspection equipment, inspection services, reuse and recycling, panel disassembly equipment, and other offerings. We used to be involved in contract manufacturing (OEM production) of PV modules and have developed solar-related businesses based on this experience.

# Management Team and Experienced Engineers



Masafumi Ito, President & CEO

- School of Mechanical Engineering, College of Engineering of Osaka Prefecture University
- Sales engineer of automation machines in Itoman Corp.
- Directed business expansion and technical development of PV module manufacturing equipment since NPC entered PV industry
- Expanded various PV-related businesses as CEO



Kazuo Hirose, Senior Managing Director

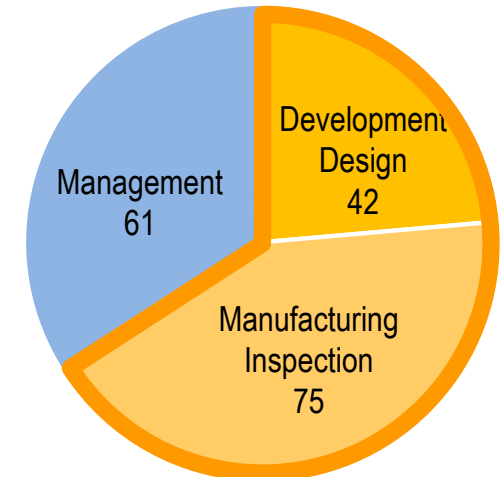
- Engineer in Itoman Engineering Corp.
- Directed development of vacuum-related equipment after establishment of NPC
- In charge of the entire management divisions



Toshiyuki Yauchi, Managing Director

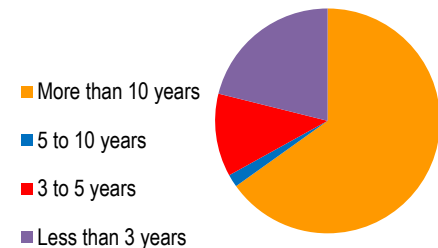
- Engineer in manufacturers such as Mazda, etc.
- Successive service in various technical posts in NPC
  - Design of an integrated PV module manufacturing line
  - Development and design of new mechanisms for automation machines, solar panel disassembly equipment, etc.

Breakdown of number of employees  
(consolidated, as of August 31, 2023)



Approximately two-thirds of the employees are engineers

Number of years enrolled for the engineers indicated above:



All of our inside directors have an engineer background and 30 years' experience in the machine manufacturing industry including the solar industry. Not only are they familiar with the solar industry, since each member of the management team has a network of contacts and information sources based on their many years of business experience, our company can make appropriate business decisions. In addition, because many of our employees are experienced engineers who have worked for us for a long time, we have a framework where skilled engineers develop younger engineers.



# Businesses that Contribute to SDGs

SDGs related to our business



Innovation  
Solution for labor shortage **9**



Automation  
Machines

Maintenance and promotion of  
solar power generation **7 13**



PV module manufacturing  
equipment



Inspection service for power plants

Stable food supply  
Solution for climate change **2 13**



Plant factory with artificial light



Solar panel disassembly  
equipment



Solar panel reuse & recycling  
(Disassembly service)



Waste separation machine  
(machine for recycling)



Production of fertilizer from chicken manure  
and food waste



**12**  
Recycling

Efforts for decarbonization



Solar power system of approx. 630 kW for in-house power consumption and electric power sales installed on the rooftop of Matsuyama Factory. (Equivalent to about 180 residential solar power systems.)

We have contributed to the spread and sound operation as well as sustainable development of renewable energy through providing equipment and solar-related services. We will continue to deploy businesses that contribute to sustainability around the PV modules and solar panels, for example, through developing businesses in new fields to address climate change and recycling-related equipment.

# Patents, compliance with overseas safety standards, license and registration

## ■ Patent

Patented technology	Number	Description
PV module manufacturing equipment	7	CP mechanism and CF equipment in stringing process Laser inspection mechanism
Vacuum-related machines (laminator)	4	Hot air press mechanism / hot plate mechanism
PV panel disassembly equipment	4	Heated blade separation technology / aluminum frame separation mechanism
Inspection service of solar power plant	1	Multi string prove holder (power generation measuring jig)

## ■ Compliance with overseas safety standards

Area	Standard/directive	Standard number and outline
EU	CE	EN ISO 12100, EN ISO 13849-1, EN ISO 13850, EN ISO 13857, EN ISO 14120, EN ISO 60204-1 General principles for design, safety-related parts of control systems, emergency stop, electrical requirement of machines, etc.
North America	NEC	NFPA 70、NFPA 79、ANSI RIA R15.06 National electrical code, electrical standard for industrial machinery, and industrial robots and robot systems - safety requirements
Canada	CSA	CAS Z431、CSA Z432、CSA Z434、CSA C22.1 Basic and safety principles, safeguarding of machinery, etc.
Semiconductor	SEMI	SEMI S2、SEMI S10、SEMI S22、SEMI S1、SEMI S8 Environmental, health, and safety guideline, electrical design, risk assessment and risk evaluation process, equipment safety labels, etc.

## ■ License, registration, and permission

License, registration, and permission	Registration date, license number
Environmental management system ISO14001	March 30, 2006 E1217
Quality management system ISO9001	August 27, 2009 Q2899
Used goods merchant license	August 29, 2016 Tokyo 306601606280 / September 23, 2016 Ehime 821080001389
Registered electrical contractor	December 15, 2016 Ehime Chuyo Local Bureau 2021155
Industrial waste disposal license	April 4, 2019 License No:08920209040
Industrial waste collection and transportation license	June 4, 2020 License No:03807209040

1. Business Model
2. Market Environment
3. Source of Competitiveness
- 4. Business Plan**
5. Risk Information

# Short-term Business Plan: Review of Company Actions for FY 2023

	Company actions	Review at the end of FY 2023
PV module manufacturing equipment	<ul style="list-style-type: none"> <li>■ Book the sales of equipment for First Solar's new factories (India and the US). Acquire orders of equipment for expansion of Ohio factory and the new factory in Alabama.</li> <li>■ Satisfy the needs from the existing customers in the US and Japan who need high-end equipment.</li> </ul>	<ul style="list-style-type: none"> <li>■ Booked the sales of equipment for First Solar's new factories as scheduled. Received orders of equipment for expansion of Ohio factory, new factory in Alabama, and R&amp;D of new products.</li> <li>■ Booked the sales of satellite PV manufacturing equipment for a Japanese customer. Received orders of equipment for R&amp;D of next generation PV modules such as perovskite PV.</li> </ul>
Automation Machines Vacuum-related equipment	<ul style="list-style-type: none"> <li>■ Focus on the customer in the Japanese electronic parts industry whose capital investment is active.</li> <li>■ Acquire stable customers.</li> </ul>	<ul style="list-style-type: none"> <li>■ Booked the sales of equipment for major customer in the Japanese electric parts industry as scheduled. The sales surpassed JPY 1 billion which was the goal set at the beginning of the business.</li> <li>■ Expanded sales target to new customers in the US and Japan.</li> </ul>
Inspection service for solar power plant	<ul style="list-style-type: none"> <li>■ Win orders for pre-operation inspection for power plants that have not started operation yet.</li> <li>■ Win orders for regular inspection for power plants that have started operation.</li> </ul>	<ul style="list-style-type: none"> <li>■ Stable orders and sales bookings of pre-operation and regular inspection.</li> <li>■ Conducted R&amp;D to expand inspection target to other power plants such as wind, biomass, etc.</li> </ul>
Reuse and recycling of solar panels	<ul style="list-style-type: none"> <li>■ Establish a network for collection of end-of-life solar panels.</li> <li>■ Improve the recycling rate and reduce recycling cost by application development.</li> </ul>	<ul style="list-style-type: none"> <li>■ Proposed and hosted a subcommittee for circulation system of solar power generation equipment at Matsuyama city SDGs Committee.</li> </ul>
Solar panel disassembly equipment	<ul style="list-style-type: none"> <li>■ Book the sales of projects of which we have received orders.</li> <li>■ Enhance sales at the US subsidiary by installing a demo machine. Actively respond to inquiries.</li> <li>■ Expand the product lineup.</li> </ul>	<ul style="list-style-type: none"> <li>■ Booked the sales of frame separator and automated disassembly line in Japan and overseas (France).</li> <li>■ Received steady orders.                             <ul style="list-style-type: none"> <li>Automated disassembly line 1 (Australia)</li> <li>Glass separator 1 (Japan)</li> <li>Frame separator 4 (US 1, Japan 3)</li> </ul> </li> <li>■ Conducted R&amp;D of new product for improvement of recycling rate.</li> </ul>
Plant factory business	<ul style="list-style-type: none"> <li>■ Continue the business to address sustainability although the investment in the production facility was booked as an impairment in FY 2022.</li> <li>■ Reduce cost by improving work efficiencies and switch to vegetables with higher added value.</li> </ul>	<ul style="list-style-type: none"> <li>■ Continued full production and full sales. Revised selling prices.</li> <li>■ Continue the business aiming to switch to vegetables with higher added value and improve work efficiencies.</li> </ul>
New business	<ul style="list-style-type: none"> <li>■ Conduct development of automation machines for industrial waste treatment industry and fowl droppings recycling test.</li> </ul>	<ul style="list-style-type: none"> <li>■ Completed most of the verification of the system for fertilizer production using methane fermentation residue of chicken manure.</li> </ul>

# Short-term Business Plan: Business Results for FY 2023

## Consolidated Statement of Income

(Million yen)

	FY 2022		FY 2023								
	Results (A)		Revised forecasts (October 12, 2022)(B)		Revised forecasts (April 12, 2023)(C)		Results				
	Amount	vs. Sales (%)	Amount	vs. Sales (%)	Amount	vs. Sales (%)	Amount	vs. Sales (%)	vs.(A) (%)	vs.(B) (%)	vs.(C) (%)
Sales	4,379	100.0	9,034	100.0	9,125	100.0	<b>9,320</b>	100.0	112.8	3.2	2.1
Gross profit	1,526	34.8	1,297	14.3	1,648	18.1	<b>1,944</b>	20.9	27.4	49.9	18.0
SG&A expenses	906	20.7	954	10.6	990	10.8	<b>967</b>	10.4	6.7	1.4	△ 2.3
Operating income	620	14.2	342	3.8	658	7.2	<b>976</b>	10.5	57.4	185.4	48.3
Non-operating income	24	0.5	3	0.0	9	0.1	<b>6</b>	0.1	△ 75.0	100.0	△ 33.3
Non-operating expenses	27	0.6	4	0.0	3	0.0	<b>20</b>	0.2	△ 25.9	400.0	566.7
Ordinary income	617	14.1	342	3.8	664	7.3	<b>963</b>	10.3	56.1	181.6	45.0
Extraordinary income	-	-	-	-	-	-	-	-	-	-	-
Extraordinary loss	82	-	-	-	-	-	-	-	-	-	-
Net income before tax	535	12.2	342	3.8	664	7.3	<b>963</b>	10.3	80.0	181.6	45.0
Income tax-current	3	0.1	59	0.7	124	1.4	<b>191</b>	2.0	6,266.7	229.3	54.0
Income tax-deferred	152	3.5	0	-	6	0.1	<b>(221)</b>	0.1	-	-	-
Net income attributable to owners of the parent	379	8.7	283	3.1	533	5.8	<b>993</b>	10.7	162.0	250.9	86.3

Note: 1. Percentages at vs. (A), (B ) and (C) represent increase/decrease rate.

2. Revision of earnings forecast was also announced on August 30, 2023. However, the details are not indicated because the numbers are close to the actual results.



# Short-term Business Plan: Business Results for FY 2023

## Changes from Initial Forecast

### Sales

- Booked the sales of equipment for new factories (in US and India) of First Solar as scheduled.
  - Sales booking of automation machines for Japanese electronic parts industry shifted from 1<sup>st</sup> half to 2<sup>nd</sup> half.
- The full year sales were generally in line with the plan.
- Strong parts sales boosted the sales.
- Initial forecast: approx. JPY 450 million → Results: approx. JPY 750 million

### Gross profit

Gross profit margin: Initial forecast 14.3% → Revised forecast 18.1% → Result 20.9%

Profit margin increased due to cost reduction such as procurement cost, and strong parts sales that continued throughout the fiscal year.

### SG&A expenses

R&D expenses, taxes and dues, etc. decreased.

Personnel expenses (bonus, welfare expenses, etc.) increased.

As a result, SG&A expenses remained at the same level as the initial forecast.

### Operating income and ordinary income

Increased in accordance with the increase of gross profit.

### Net income attributable to owners of the parent

Deferred tax assets increased based on the profit plan for FY 2024.

Therefore, net income attributable to owners of the parent increased.

# Medium-term Management Plan

## Factors for Revision of Management Plan

### External factors

- Capacity expansion of First Solar is in steady progress.
- Increase in machine demand due to First Solar's active R&D for new products
- Progress of R&D for commercialization of perovskite PV in Japan

### Internal factors

- Successful in cost reduction
- Stabilization of inspection service for solar power plants, parts sales, etc. as recurring-revenue businesses
- Commercialization and expansion of fertilizer business



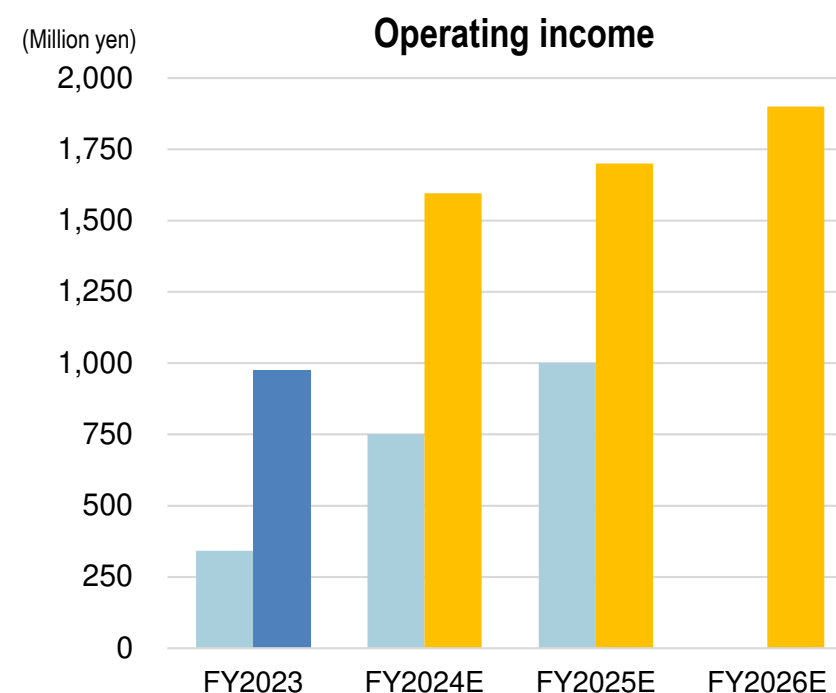
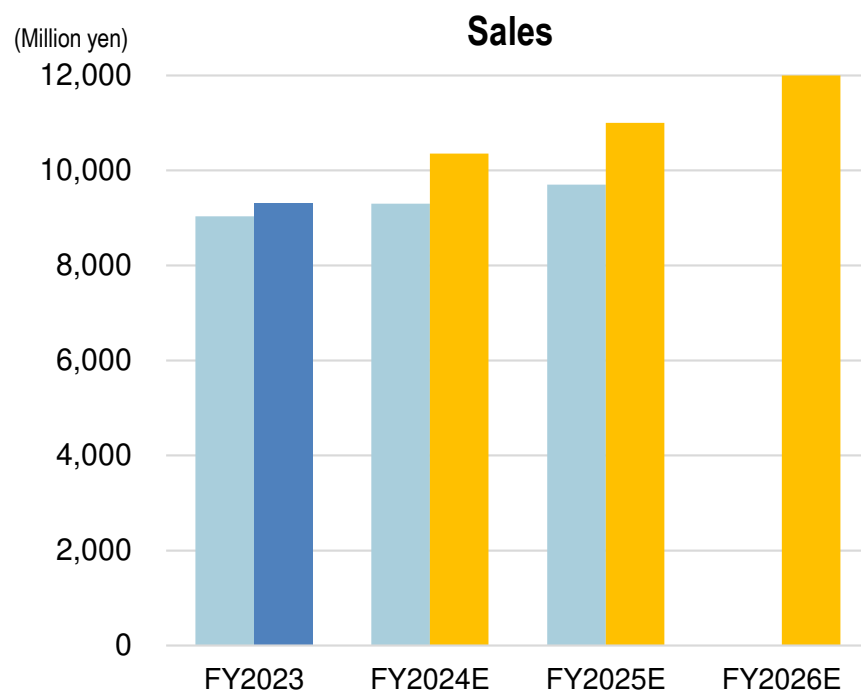
**Revision of target numbers due to steady progress of the former management plan**

### Basic policy

- Continue to provide equipment for the industries such as US PV industry, for which a long-term growth is expected due to political support, and Japanese electronic parts industry.
- Optimize the business balance for steady growth by expanding business domain. Specifically, the Company will supply solar panel disassembly equipment for which demand is expected to rise and acquire new customers of automation machines. It will also accumulate business with recurring revenue such as solar panel inspection service, reuse and recycling, and plant factory business.
- Enhance production capacity by securing human resources to deal with the increasing demand.

# Medium-term Management Plan (FY 2024 – FY 2026)

Former plan Results FY 2023 New plan



	FY 2023 (Results)	FY 2024 (Plan)	FY 2025 (Plan)	FY 2025 (Plan)
Sales	9,320	10,384	11,000	12,000
Machinery Business	8,689	9,865	10,200	10,800
Environmental Business	631	519	800	1,200
Operating income	976	1,584	1,700	1,900

# Short-term Business Plan: Company Actions for FY 2024

PV module manufacturing equipment	<ul style="list-style-type: none"> <li>■ Receive orders for equipment of First Solar's New factory in Louisiana.</li> <li>■ Book the sales of equipment for Alabama new factory, expansion of Ohio factory, and for R&amp;D of silicone/thin-film tandem module.</li> <li>■ Receive orders of high-end equipment for perovskite PV module, residential PV modules, etc.</li> </ul>
Automation Machines Vacuum-related equipment	<ul style="list-style-type: none"> <li>■ Focus on the major customer in the Japanese electronic parts industry, which has continuous capital expenditure plan.</li> <li>■ Acquire other stable customers.</li> </ul>
Inspection service for solar power plant	<ul style="list-style-type: none"> <li>■ Acquire orders of pre-operation inspection for power plants to be built and regular inspection for power plants in operation.</li> <li>■ Acquire orders of inspection for power plants of wind, biomass, etc.</li> </ul>
Reuse and recycling of solar panels	<ul style="list-style-type: none"> <li>■ Establish a solar panel collecting network.</li> <li>■ Improve the recycling rate of equipment and reduce recycling cost by developing use of collected materials.</li> </ul>
Solar panel disassembly equipment	<ul style="list-style-type: none"> <li>■ Book the sales of projects for which we have received orders.</li> <li>■ Enhance sales in target regions such as Japan, Europe, and Australia.</li> <li>■ Launch new products for improvement of recycling rate.</li> </ul>
Plant factory business	<ul style="list-style-type: none"> <li>■ Continue operation as sustainable business that improves company recognition.</li> </ul>
New business	<ul style="list-style-type: none"> <li>■ Conduct R&amp;D of methane fermentation of food waste and production of fertilizer from the fermentation residue.</li> <li>■ Start sales activities for fertilizer production plant and its maintenance service.</li> </ul>

\*Please also refer to "Business Information FY2023", disclosed on 13<sup>th</sup> October, 2023, for company actions of FY2024.

# Short-term Business Plan: Business Forecast for FY 2024

## Consolidated Statement of Income

(Million yen)

	1st half		Full year	
	Amount	vs. Sales(%)	Amount	vs. Sales(%)
Sales	<b>3,329</b>	100.0	<b>10,384</b>	100.0
Machinery Business	<b>3,128</b>	94.0	<b>9,865</b>	95.0
Environmental Business	<b>200</b>	6.0	<b>519</b>	5.0
Gross Profit	<b>877</b>	26.3	<b>2,615</b>	25.2
Machinery Business	<b>831</b>	26.6	<b>2,459</b>	24.9
Environmental Business	<b>46</b>	23.0	<b>156</b>	30.1
Operating income	<b>363</b>	10.9	<b>1,584</b>	15.3
Ordinary income	<b>363</b>	10.9	<b>1,584</b>	15.3
Net income attributable to owners of the parent	<b>250</b>	7.5	<b>1,081</b>	10.4

## Expenses and profits

- Orders received with an adequate profit  
Gross profit rate: 25.2%
- Increase in salaries is expected as SG&A expenses.
- Increase in US tax is expected due to increase in sales in the US.  
(FY 2023 JPY 20 million → FY 2024 forecast approx. JPY 300 million)



1. Business Model
2. Market Environment
3. Source of Competitiveness
4. Business Plan
5. Risk Information

# Business Risks and Countermeasures (1)

Description of risk	Countermeasures, etc.	Timing	Possibility	Impact
Risks associated with the stagnation or deceleration of the solar market - Decrease in sales and profits - Impairment loss of assets	- Enhance products and services for installed solar panels. - Enhance products and services for discarded panels. - Expand automation machine business and new business other than solar.	Occasionally	Low	Large
Exchange rate fluctuations - Exchange rate loss - Increase in overseas procurement costs (when the yen is weak) - Deterioration of price competitiveness (when the yen is strong)	- Basically, conduct business with overseas customers in yen. - Reserve exchange rate when exceptionally conducting business in foreign currency. - Increase the overseas procurement ratio when the yen becomes strong.	Near future	Medium	Small
Variations associated with the sales recording time and the profit rate of individual projects - Decrease in sales and profits (including carry-over) - Decrease in profit margins	- Improve quality through efforts according to ISO 9001. - Review the progress of processes in each project and address problems at an early stage as needed. - Reduce risks of failure to satisfy specifications and delay through pre-shipment inspections.	Occasionally	High	Medium
Variations in the business environment of large customers - Decrease in sales and profits - Shrinkage or suspension of deals	- Strengthen relationships with large companies through research and development as well as cost reductions. - Strengthen marketing targeting customers other than large customers. - Develop automation machines and environmental business so as not to heavily rely on large customers.	Occasionally	Low	Medium
Lengthening of lead time of parts - Lengthening of lead time of products - Increase in manufacturing costs	- Attempt overseas procurement through our overseas subsidiary. - Use alternative parts from the design phase.	Occasionally	Medium	Large
Price increase of parts and raw materials - Decrease in profit due to increase in manufacturing costs	- Maintain purchase price as low as possible through negotiation with suppliers. - Reflect the increase in parts price to selling price of machines through negotiation with customers.	Occasionally	High	Large

# Business Risks and Countermeasures (2)

Description of risk	Countermeasures, etc.	Timing	Possibility	Impact
Soaring transportation costs - Increased costs of products for overseas	- Conclude free carrier (FCA) contracts.	Near future	High	Medium
Natural disaster - Decrease or loss of production capacity	- The cell production system allows us to continue production activities as long as staff and space are secured. - Ensure flexible production capacity using partner factories. - Land with low risks of tsunami damage, flood damage and sediment disaster	Unknown	Medium	Large
Deferred tax assets -Changes in projections and assumptions on taxable income expectation -Revisions of the tax system, including tax rate changes, revisions of accounting standards, etc.	- Carefully assess feasibility of the profit plan to book deferred tax assets based on the taxable income which is reasonably and conservatively calculated. - Regularly revise recoverability of deferred tax assets.	Occasionally	Medium	Medium
Lack of production capacity due to increase in orders - Lack of human resources due to rapid increase in orders and aging of engineers. - Overdue deadlines, failure to meet required specifications, and opportunity loss.	- Outsource some work to partner companies. Accept temporary workers. - Enhance recruitment of young engineers. - Secure sufficient production period by negotiation with customers.	Occasionally	Medium	Medium

\* For other risks, refer to “Business and Other Risks” in the financial statements submitted on November 30, 2023.

# Thank you very much for your interest in NPC!

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

## Contact:

IR Group, General Affairs Department, NPC Incorporated

Phone : +81-3-6240-1206 FAX : +81-3-5817-8835

E-Mail : npc.ir @ npcgroup.net

The information in this material is based on the information sources that we can obtain as of the disclosed day. We do not represent this to be accurate or complete.

The information in this material has been made for making our business plan and strategies. It is not for a solicitation, offer to buy or sell securities or enlightening people.

**Next disclosure of “Business Plan and Potential for Growth” is scheduled for November 2024.**