Ferrotec Corporation

Mid-term Management Plan Challenge 1000

1.This presentation was prepared for the purpose of providing information regarding the company's Mid-term management plan "Challenge 100" and is not a solicitation to purchase securities issued by the Company. Please ensure that the decision on whether to make an investment in our Company is made at your own risk.

2. All data in this material are as of May 20, 2011. Opinions, forecasts and other forward-looking statements represent the company's judgments at the time the material was prepared and may be changed without prior notice. The targets for the midterm management plan in this material are just to indicate the future direction. The company does not promise or warrant that the figures in this material will be realized.

After the 30th Anniversary (2010) of the Establishment

Return to Ferrotec's spirits-"Life goal", "Lively", "Discipline", "Honesty", "Diligent"- at the time of its establishment aiming to make the next leap forward

Formation and announcement of the midterm management plan "Challenge 1000"

History

Ferrotec's current businesses

Electronic device business	Equipment-related business	Photovoltaic business

History

1980～	Started manufacturing and developing magnetic fluid products (vacuum feedthroughs)
1980～	Started selling single-crystal silicon growing furnace
1992～	Started manufacturing and selling materials for thermo module and module
1998～	Started selling quartz products for semiconductor business
2002～	Started the CMS business for silicon wafer processing, machine tools, etc.
2005～	Started the PV business (manufacturing and sale of crystal manufacturing equipment and crucibles)
2008～	Started manufacturing and selling ceramic products

1999 2001 2003 2005 2007 2009 2011

Converted the former U.S. parent company into a subsidiary and changed to a global company

Growth of PV business focused on single crystal silicon manufacturing equipment for photovoltaic cells

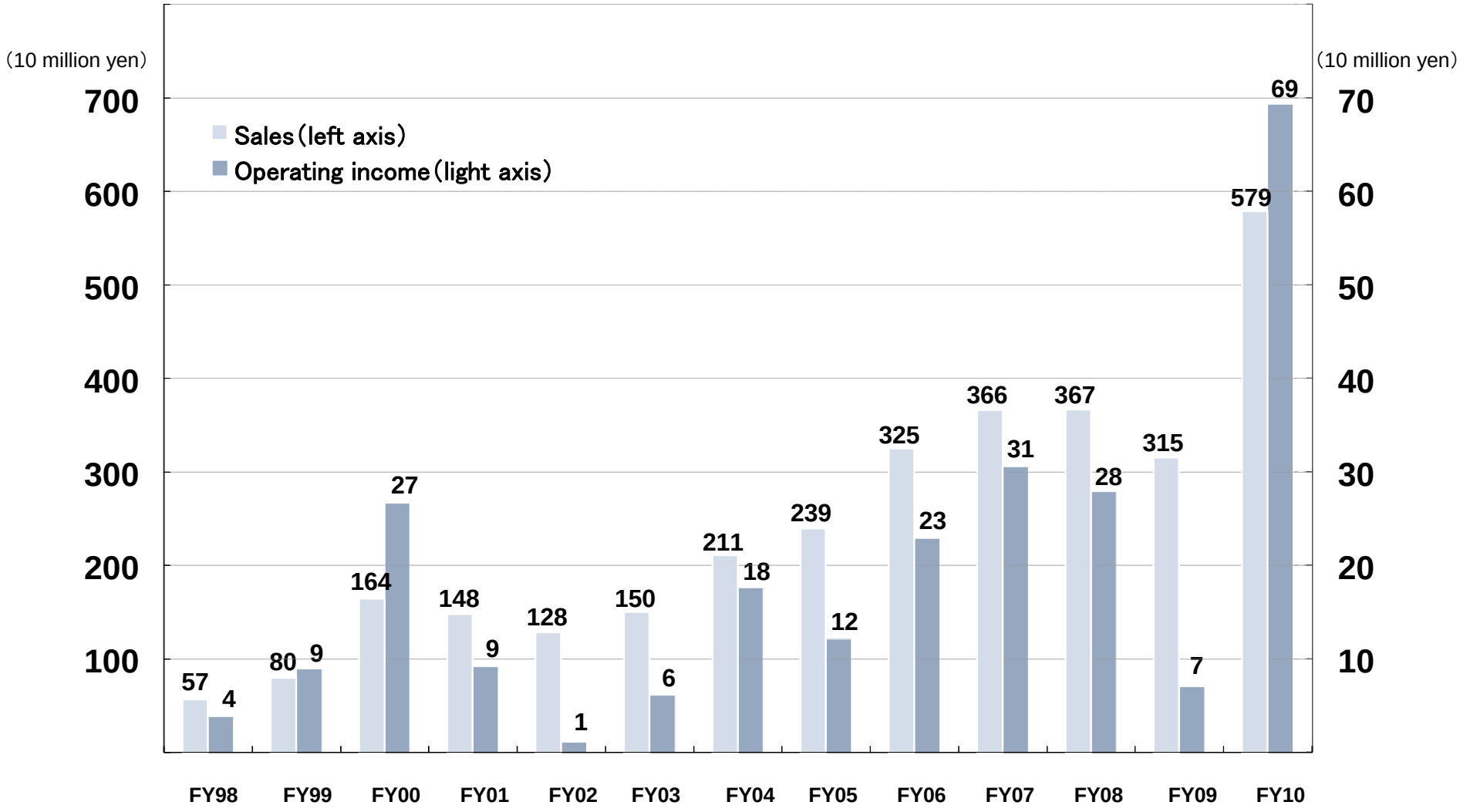
Accumulated the core technologies and knowhow of magnetic fluid and vacuum technology business

Growth of PV business utilizing the core technologies and knowhow

◆*Vacuum feedthroughs / quartz products / ceramics*

◆*Magnetic fluid* *~ Ferrotec Group's core technology since its establishment ~*

Sales and Operating income Trend



Midterm Management Plan「Challenge 1000」

~ *Basic policy in the「Challenge 1000」*~

Concentrate management resources even more on the environment and new energy fields

Further expansion of PV equipment / consumables business

Steady growth of LED business in the equipment-related business

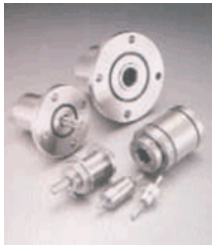
Ferrotec's Business Directions

	Field	Direction
Electronic device segment	Thermo module	Expand sales of optical communication and high-end products; enter the power device substrate market
	Magnetic fluid	Seek to use in the environmental industry
Equipment-related segment	Vacuum feedthroughs	Introduction of new highly-value added products; raise market share in Korea and China
	Quartz products	Expand PV sales (in China); expand LED/compound semiconductors sales
	Ceramics	Expand sales in overseas markets; develop differentiated products including high purity alumina parts
	Semiconductor wafer	Own independent sales of discrete wafers in the Japanese, Taiwanese, Chinese and the U.S. markets
	LED	Expand sales of TEMESCAL vacuum deposition equipment of sapphire furnace
PV segment	PV manufacturing equipment	Expansion of product lineup; improvement of functions including additional charging function
	PV consumables	Improve market share; quality improvement leading to the upgrading of finished products performance
	PV components	Increase supply capacity due to construction of new plant

Equipment-related Business Strategy and the Current Measures

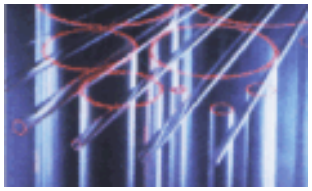
Aim for steady growth in the Current Measures

Manufacturing equipment components



＜Vacuum feedthroughs＞※

＜ceramic products＞※



＜quartz products＞※

※ Vacuum feedthroughs will be used for MOCVD equipment and quartz and ceramic products will be used for manufacturing process

- ✓ A full-scale entry into the LED market as a sales company
- ✓ Enhancement of materials

Core products

Manufacturing equipment

Took over Temescal (vacuum deposition equipment business) from Edwards Vacuum Inc. in January 2010 and started full-scale operation in the LED market

Vacuum deposition equipment

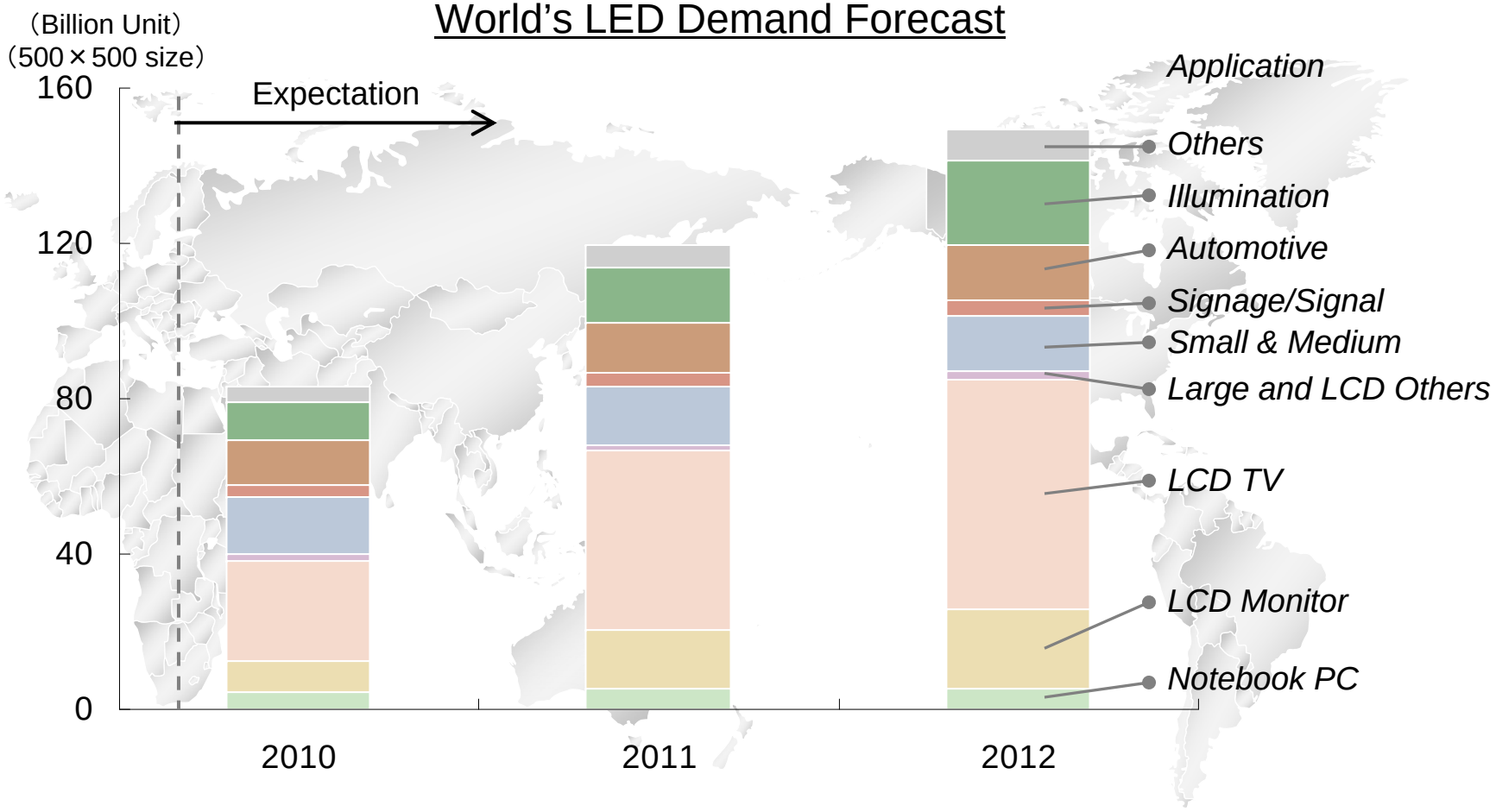
- ✓ **Launched LED products in addition to the expansion of lineup of vacuum deposition equipment**
- ✓ **Develop a popular type (low cost product) of vacuum deposition equipment by combining the Ferrotec Group's vacuum technology and business knowhow and operating base in China; accelerate the development in the Chinese market**

The next driver of growth

LED Market Forecast

Forecast growth and expansion of manufacturing equipment and manufacturing equipment component in accordance with the increase in demand for LEDs

World's LED Demand Forecast



Source：Display Search（July 2010）

Future Direction of the Equipment-related Business

Future direction ～Manufacturing equipment component～

Development of new manufacturing equipment component business using vacuum technology

Develop LED equipment chamber manufacturing into a core business by using the Ferrotec Group's vacuum technology

Future direction ～Manufacturing equipment～

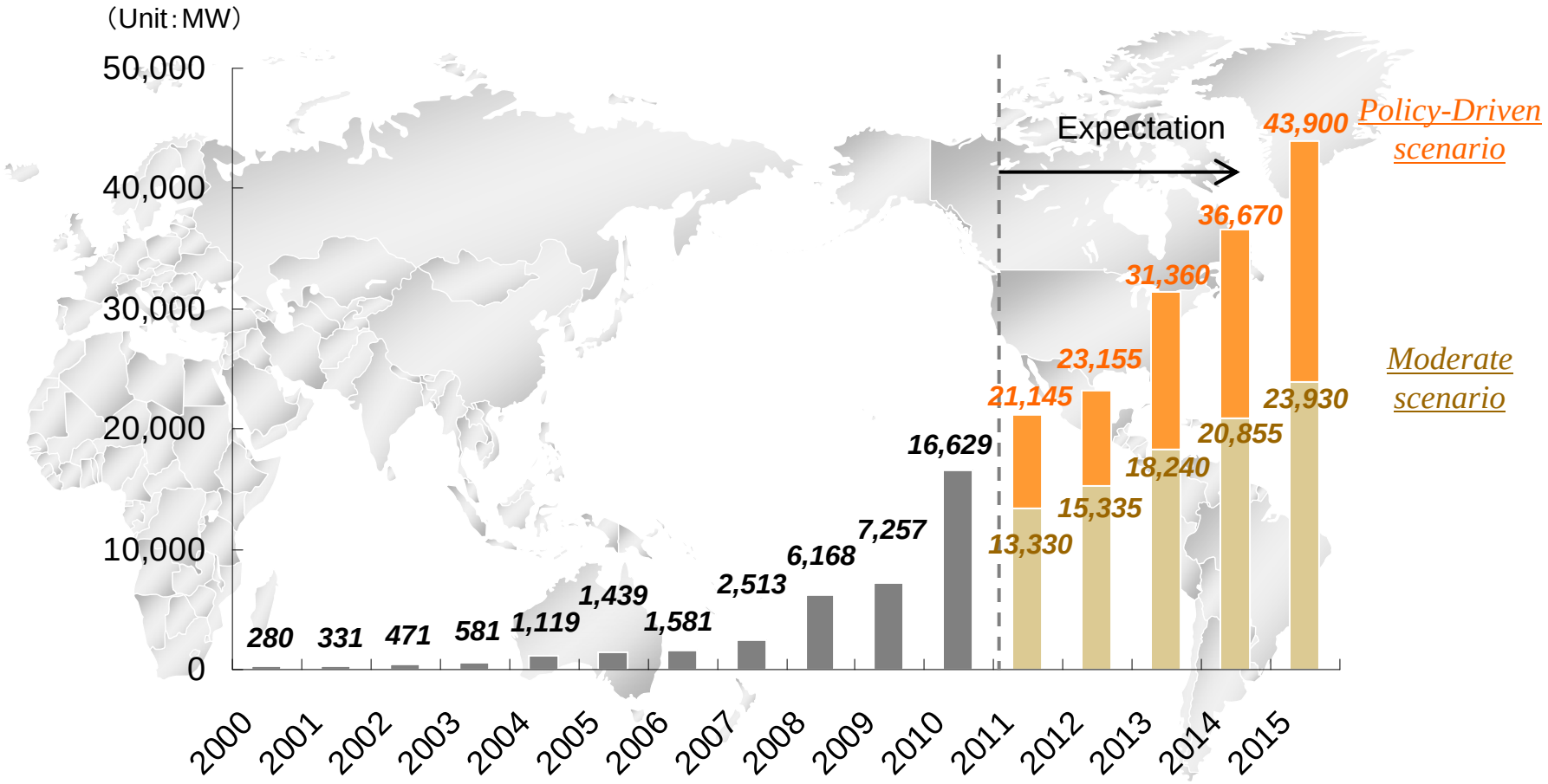
Development of new manufacturing equipment business related to LED

Aim to develop sapphire furnace and establish crystal manufacturing technology by using the Ferrotec Group's Si single crystal manufacturing technology

Expansion of PV Business～Market Environment～

Forecast growth and expansion of manufacturing equipment market and silicon production volume in accordance with the expansion of the PV market

Photovoltaic Market Result until 2009 and Future Forecast



（source：Epia）

Expansion of PV Business～Support Measures and Introduction Goals～

Will support measures/energy policies of individual governments lead to the expansion of PV market

Germany	↘ Significantly reduced the electricity purchase price based on the amended Renewable Energy Law approved in May 2010 ↗ Meanwhile, in May 2011, German chancellor Merkel expressed the country's support for moving the schedule of abolishing all nuclear power stations forward from 2040 to 2022. The future direction of energy policy will be the focus of attention
Italy	↘ Significantly reduced the electricity purchase price in 2010 ↗ However, the goal of introducing solar power has been raised to "8GW by 2020" in the Italy's national renewable energy plan (NREAP) announced in 2010 ↗ On May 25, 2011, Cabinet Orders that set out the freeze on the discussion of restart of nuclear power stations for an indefinite period and other proposals were approved at the Lower House
China	↗ In the "Outline of the 12th 5-year Plan for National Economy and Social Development Plan" released in March 2011, China announced that it will raise the renewable energy rate in energy consumption to 15% by 2020 ↗ The National Development of Reform Commission Energy Research Institute announced that it will raise the goal of installing equipment for solar energy generation in China to 10GW in 2015 and 50GW in 2020
U.S.	↗ In the State of the Union Speech in 2011, the U.S. announced its goal of using clean energy resources for 80% of the electricity by 2035. The future direction of energy policy will be the focus of attention
Japan	↗ In May 2011, Prime Minister Naoto Kan announced at the OECD meeting that the natural energy rate of all electricity will be increased to at least 20% in 2020 ↗ The surplus purchase level targeting non-residential solar power has been raised to ¥40/kWh from ¥24/kWh (fiscal 2011). For applicants, the purchase price is applicable for 10 years

PV Business Strategy

Crystal manufacturing | **Ingot cutting** | **Wafer inspection** | **Ingot & wafer**

Single crystal growing furnace

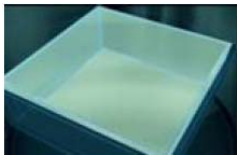
Multi crystal manufacturing equipment

Equipment

Balance earnings of PV business

Consumables

Quartz crucible



Square crucibles

Angular saw

Inspection equipment

Wire saw

- ✓ **Introduce products that meet the needs of customers in terms of price and specification**
- ✓ **Use of sales channel established in the crystal silicon manufacturing equipment business**

Silicon ingot (single crystal)

PV wafer

- ✓ **Slash prices through the Ferrotec Group's consistent production system**
- ✓ **Plan to improve equipment qualities through manufacturing experience**
- ✓ **Positioning of effective promotion of Ferrotec's equipment**

Major products (equipment & consumables)

The next driver of growth

Business Direction ① Crystal Silicon Manufacturing Equipment

Crystal manufacturing | Ingot cutting | Wafer inspection | Ingot & wafer

PV market- crystal silicon manufacturing equipment

Midterm target :
Differentiate with other companies and realize growth

Product lineup and summary

Single crystal growing furnace		Expand market share by improving price competitiveness through self-manufacturing of vacuum feedthroughs and quality and support systems suitable for customer needs Released a 200kg charge in addition to 120kg and 150kg
Multi crystal manufacturing equipment		The product now comes in 250kg, 450kg, 600kg and 800kg and responds to customer needs

Measures

- Strengthen differentiation strategy through education of manufacturing process operation and the advantage of running cost
- Release equipment with large furnace, fully-automated, energy-saving, additional charging functions and recharge function to reduce Si manufacturing cost
- Development of overseas markets: Develop European and Asian markets

Business Direction ② Ingot cutting and wafer inspection

Crystal manufacturing | **Ingot cutting** | **Wafer inspection** | Ingot & wafer

PV market- ingot cutting & wafer inspection

Midterm target :
Aim for "total solution"

Product lineup and summary

Angular saw		Ingot cutting and chamfering and cutting ingots in cubes can be done automatically
Wire saw		Develop and sell based on customer needs and mass produce self-developed wire saws
Inspection equipment		Pair wafer inspection equipment developed with Microsoft Japan

Measures

- Develop equipment based on customers' feedbacks obtained through silicon manufacturing equipment business
- Development of fixed abrasive grain wire saw
- Self-develop equipment up to cell process and sell them using an alliance

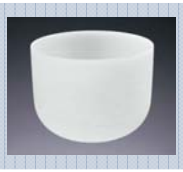
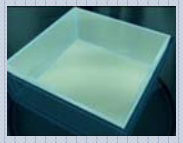
Business Direction ③ Consumable Business

Crystal manufacturing → Ingot cutting → Wafer inspection → Ingot & wafer

PV market- PV consumables

Midterm target :
Aim for the world's No.1 PV crucible manufacturer

Product lineup and summary

Quartz crucible		Contribute to the reduction of finished product cost by boosting yield
vessel		Manufacture at a joint venture established with Covalent Material of a high-quality vessel crucible
Hot zone		Realize power saving and shortening of lifting hours

Measures

- Provide products capable of maximizing the performance of Ferrotec's manufacturing equipment
- Started production at Yinchuan crucible factory and build a system to increase the output to 30,000 per month in 2011 (currently, 18,000/month)
- Aim to achieve a leading market share by expanding sales channels in the Japanese market and overseas markets for PV crucibles
- Enter semiconductor crucible making use of high level techniques ⇒ Aim for 30% of sales in crucible

Business Direction ④ Ingot & wafer

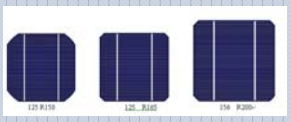
Crystal manufacturing → Ingot cutting → Wafer inspection → **Ingot & wafer**

PV market- Ingot and wafer for PV

Midterm target :

Establish partnerships and cooperative ties with customers by providing highly-value added products

Product lineup and summary

Silicon ingot		Enhance production capacity according to the establishment of the new Yinchuan factory
PV wafer		Strengthen wafer manufacturing at the Shanghai factory and offer highly-value added products
PV cell		Plan to mass produce from the experimental stage and study the high conversion rate and highly-reliable manufacturing process

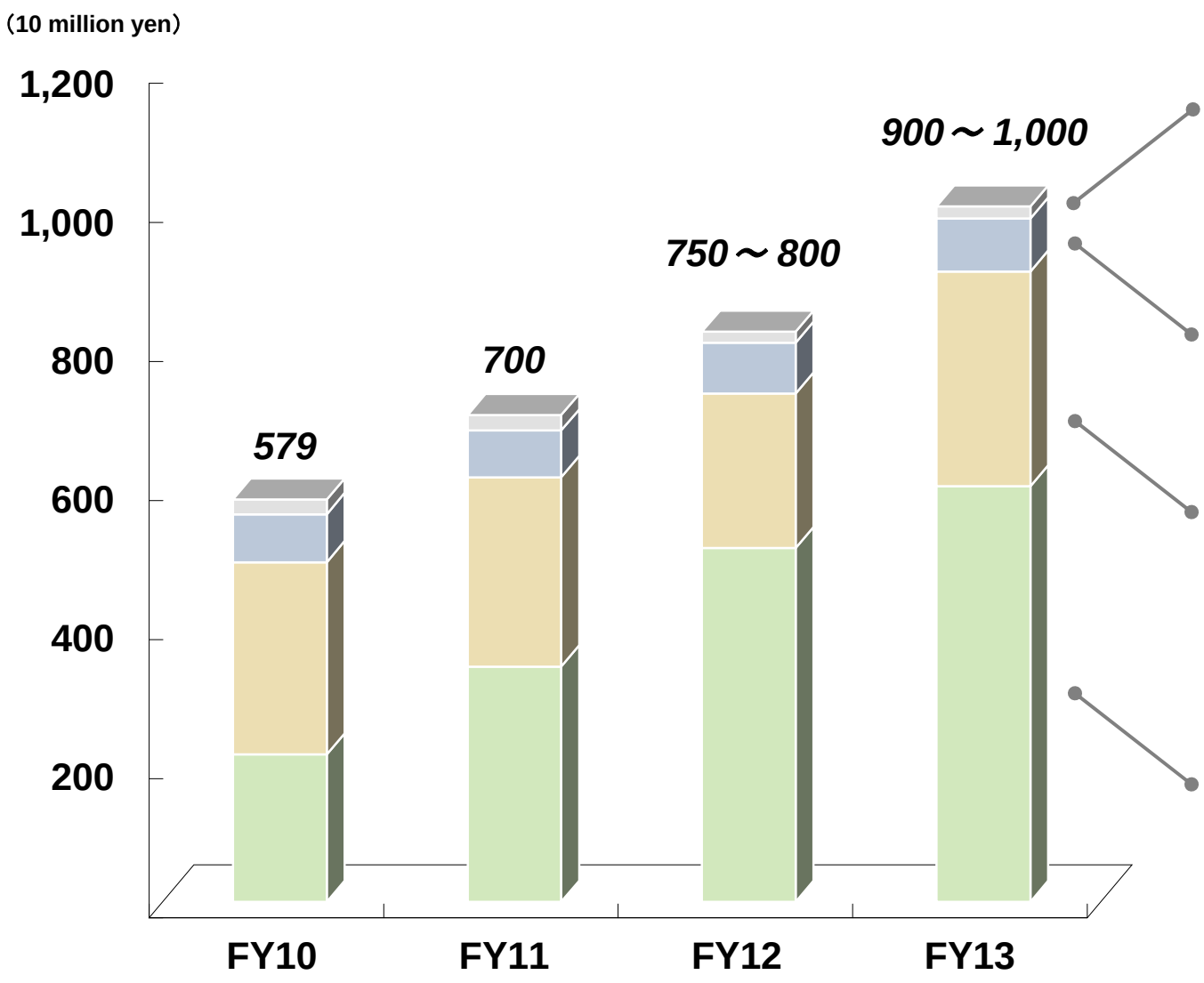
Measures

- Continue developing the business for efficient promotion of self-manufacturing equipment and to determine the needs of customers (feedback into equipment)
- Development and provision of high-performance and highly-value added products
- Realize a competitive cost reduction in the market (demonstrate the superiority of manufacturing technique)
- Establish a 300MW system by increasing productions at the new Yinchuan factory and Shanghai factory

Numerical Targets for the Midterm Management Plan “Challenge 1000”

	FY10	FY11	FY12	FY13
Sales	¥ 57.9 billion	¥ 70 billion	¥ 75～80 billion	¥ 90～100 billion
Operating margin	12.0%	10.7%	10%～12%	10%～12%

Numerical Targets for the Midterm Management Plan “Challenge 1000”



(Segment & growth factor)

Others

Electronics device

Continuation of profitability
New application and reconstruction demand

Equipment-related

Recover after the semiconductor industry adjustments
Rise in LED demand
Demand for recovery of developed-world economy

PV

Build mega solar around the world
Increase in demand due to price plummet of panels
Polysilicon companies will start increasing productions from Sept. 2013

Capital Investment Plan

Capital investment plan during the Challenge 1000

	FY10	Total of 3 fiscal years of the Challenge 1000
Capital investment	¥ 5 billion	About ¥ 19 billion

Major recent capital investment

Yinchuan factory

Scheduled for operation in August 2011

Increase productions of PV silicon ingots and quartz crucibles for single crystal growing furnace

※Manufacturing base of 2 subsidiaries in China, Shanghai Shenhe Thermo-Magnetics Co., Ltd. and Advanced Quartz Material (Hangzhoug) Co., Ltd.

Hangzhou Solartech

Began test operation in May 2011

Production of quartz vessels for multi-crystal PV cells

※Manufacturing base of 3 joint companies, Ferrotec, Chinese subsidiary AQM and Covalent Materials Corp.

Midterm Management Plan ”Challenge1000”

Basic policy in 3 years time

Become an operating company involved in the new energy industry and environmental industry in addition to electronics industry, Ferrotec’s main business field

Basic policy in the “ Challenge 1000”

Concentrate management resources even more on the environment and new energy fields

Numerical targets

Sales	***Sales target ¥ 100 billion (FY13 target)***
Operating margin	***10%～12％(FY11～FY13 target)***