Medium-term Business Plan (2011-2015)

PEGASUS

December 1, 2010

SHOWA DENKO K.K.

Agenda

- Review of the results of Passion Extension
- New medium-term business plan “PEGASUS”

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Review of the results of Passion Extension

Structural reform and V-shaped recovery in performance

■ Structural reform

- In the 2009-2010 period, reduced costs by ¥28 billion.
- Aluminum segment: Improved profitability through drastic structural reform.
- Chemicals segment: Strengthened the functional materials business through merger with Showa Highpolymer.

■ Speedy expansion of businesses

- HD: Achieved the largest share in the world as independent supplier
- LED: Entered the general lighting market; Capacity expansion to meet growing demand
- Battery materials: Launched high-performance anode materials for large LIBs
- Petrochemical: Enhanced competitiveness through renewal of naphtha cracking furnaces

■ Improvement in financial strength

- Capital increase by public offering in 2009.

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Major steps taken to strengthen business

Strengthened base businesses

- Petrochemicals: Renovated naphtha cracking furnaces; Stopped ethyl acetate production at Tokuyama.
- Inorganics: Started an implementation phase of the alumina project in Indonesia.
- Chemicals: Merged with Showa Highpolymer; Made Showa Tansan a fully-owned subsidiary.
- Aluminum: Agreed to transfer the automotive heat exchanger business; Withdrew from commodity aluminum extrusions business.

Promoted growth businesses

- HD: Acquired Fujitsu's HD media business; Expanded capacity in Singapore.
- Rare earth: Started up a new plant in Vietnam, in addition to two existing plants in China.
- LED: Increased capacity to 340 million pieces/month; Entered the general lighting market; Launched red LEDs for plant growing facilities.
- High-purity-gases for semiconductor processing: Expanded capacity in Asia including new sites.
- Battery materials: Expanded capacity for LIB anode material (1,000 t/y); Began shipments for use In commercially produced cars; Increased shipment volumes of aluminum packaging.
- LCD glass polishing material (cerium oxide): Established our position as the global Nr. 1.

New growth businesses

- Battery materials: Commercial production of carbon coating foils for electrodes; Started evaluation of liquid electrolytes for automotive applications.
- SiC epitaxial wafers for power devices: Started full-scale sample shipments.
- Heat-resistant transparent films: Building a pilot plant, for use in touch screens in LCDs.
- Organic EL for general lighting: Acquired license from Universal Display Corp.; developing proprietary device structure.

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PEGASUS

- Concept and basic strategy
- Highlights of business strategy
- R&D strategy

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Outlook of social trends

Higher convenience and comfort

- Progress in digitalization
- Electronic devices; higher quality, speed, and capacity, further downsizing
- Improved living standards in emerging countries / regions

Healthy and safe society

- Stable supply of safe food and water
- Measures against global warming; environmental protection
- Provision of high-grade medical care

Energy supply security

- Lower dependence on fossil energy
- Increase efficiency to save energy
- Acceptable renewable energy

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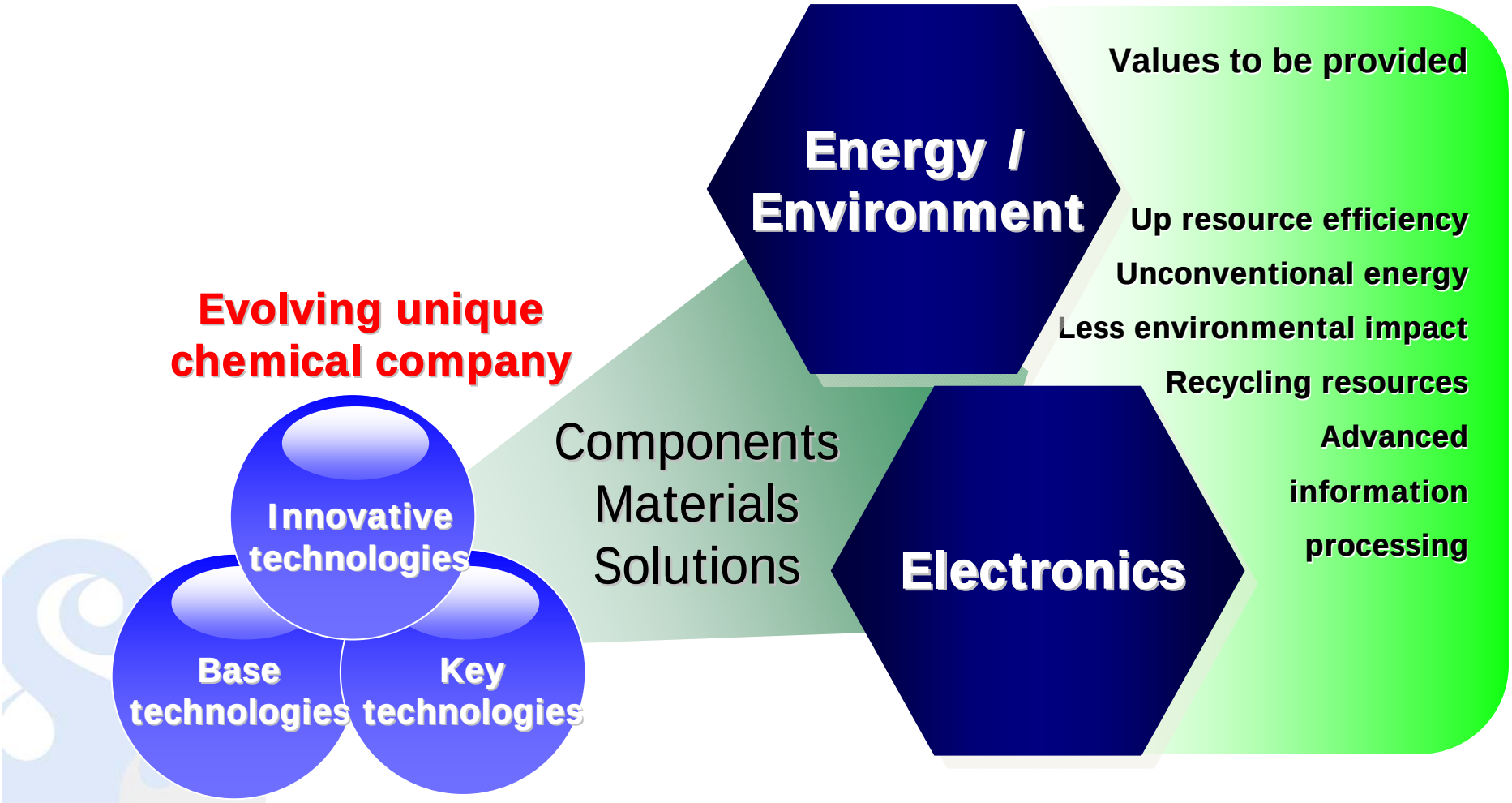
Two business domains

Contribute to the creation of society in which affluence and sustainability are harmonized



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Target “image” of the Group

Chemical company with strong presence on the global market

- Strong and diversified businesses, with leading positions in respective global market segments
- Technical capability as source of competitive power; Leadership in areas of advanced technologies
- Truly globalized group, with diversified career paths and employment forms

- Action plans under PEGASUS
  - Aggressively expand HD and graphite electrode businesses through prioritized allocation of resources
  - Expand operations in rare earth magnetic alloys and high-purity gases for semiconductor processing
  - Develop battery materials (esp. LIBs), SiC epitaxial wafers for power devices, heat-resistant transparent films, and organic EL for general lighting
  - Search for R&D themes in printed electronics, high-performance nano-materials, and bio-refinery

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PEGASUS – Name of the Plan

- "Winged Horse" in a Greek myth

- The Group will soar to new heights with its two wings of the HD media and graphite electrode businesses.

  The Group will also gallop on the ground with its four strong legs of stable base businesses, growth businesses, new growth businesses for the next generation, and strong R&D efforts.

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Numerical plan

Targets for 2013:
Operating income of ¥80 billion and FCF of ¥40 billion

(Billions of yen)

	2011 Plan	2012 Plan	2013 Plan	2015 Image
Net sales	880	930	1,000	1,100
Operating Income	45	62	80	110
Profit ratio	5%	7%	8%	10%
FCF	(2011-13 total)		70	50
ROA			7%	10%

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Breakdown by segment

Growth centering on Electronics and Inorganics Basic chemicals market to recover in 2013

(Billions of yen)

		2011	2012	2013
Petrochemicals	Net Sales	250.0	260.0	270.0
	Operating Income	5.0	6.5	9.0
Chemicals	Net Sales	130.0	140.0	160.0
	Operating Income	7.0	10.0	13.0
Electronics	Net Sales	200.0	220.0	235.0
	Operating Income	25.0	32.0	33.0
Inorganics	Net Sales	90.0	100.0	110.0
	Operating Income	10.5	16.5	23.0
Aluminum	Net Sales	120.0	115.0	120.0
	Operating Income	7.0	7.5	9.0
Others	Net Sales	90.0	95.0	105.0
	Operating Income	(9.5)	(10.5)	(7.0)
Total	Net Sales	880.0	930.0	1000.0
	Operating Income	45.0	62.0	80.0

*New segmentation as from 2011

[major changes] 1) Former Showa Highpolymer from " Petrochemicals" to "Chemicals"

2) IPP from "Aluminum and Other" to "Chemicals"

3) High-purity gases for semiconductor processing from "Electronics" to "Chemicals"

4) Shoko Co., Ltd.'s from "allocated business-wise" to "Others"

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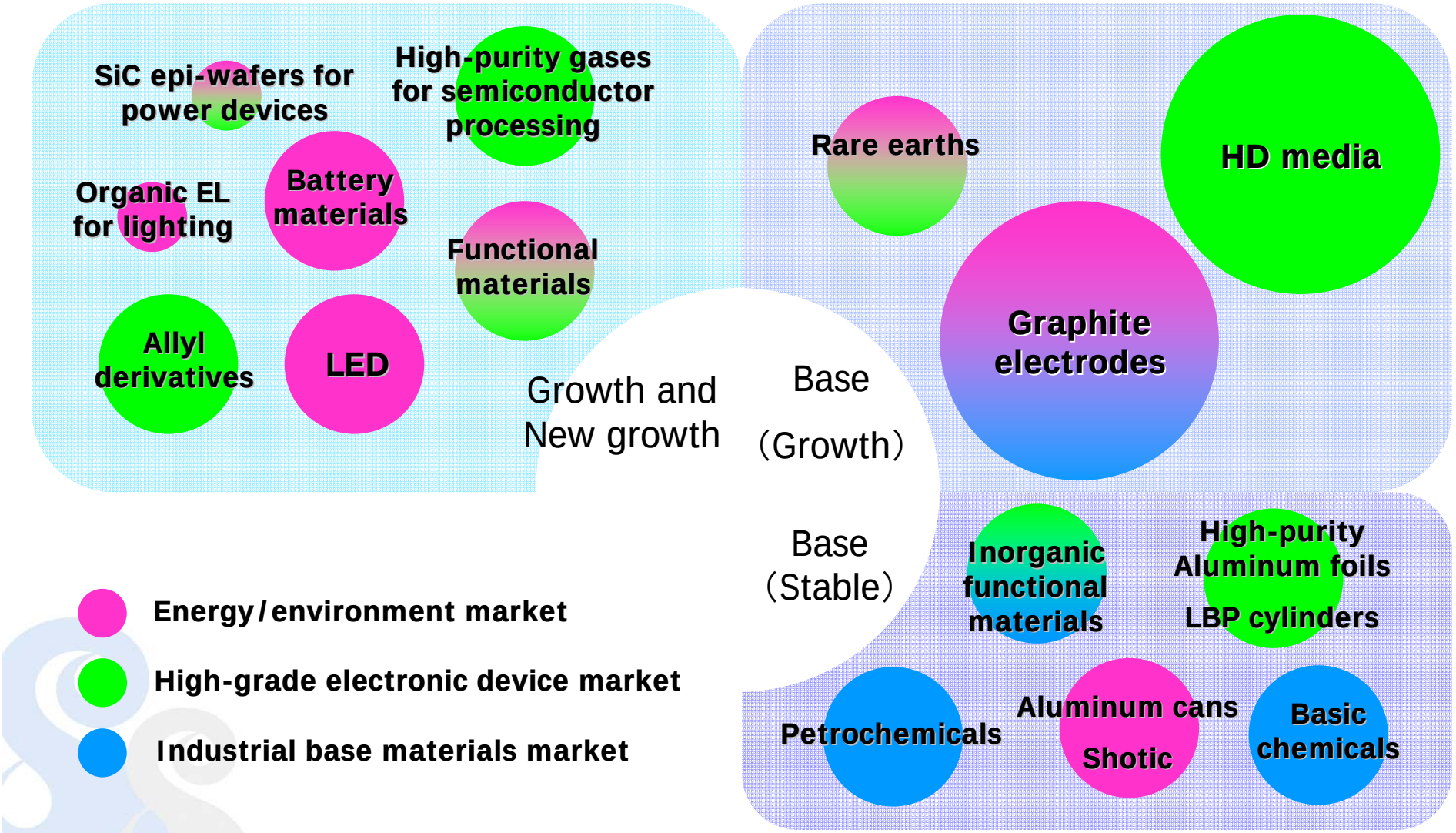
Target business portfolio



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Basic strategy

Growth strategy for globally competitive businesses

- Main businesses
  - HD media and graphite electrode are to be positioned as “main businesses” contributing to the Group’s profit and cash flow, and will be expanded further.
- New growth businesses
  - Commercialize and expand businesses in high-purity gases for semiconductor processing, battery materials, SiC epitaxial wafers for power devices, heat-resistant transparent films, and various new functional materials.
  - Establish a new business model in the LED business.
- Aggressively expanding on overseas markets
  - Expand operations in growing markets, centering on Asia.
  - Rare earths, high-purity aluminum foils and aluminum cylinders for LBPs, in addition to the businesses mentioned above.
- Utilization of M&A and partnerships
  - When necessary, we will promote M&A and partnership with other companies.
  - Partnership will also be adopted in commercializing new businesses.

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Major investments overseas

To invest aggressively in growing markets

- [HD]: Capacity expansion in Singapore
- [Graphite electrodes]: Capacity expansion in the U.S.
- [Rare earth magnetic alloys]: Expand metal production capacity in Vietnam
- [High-purity gases for semiconductor processing]: Expand operation sites in Asia
- [Alumina]: Build a JV plant in Indonesia
- [High-purity aluminum foils]: Establish new production sites to meet growing demand in China
- [Aluminum cylinders for LBPs]: Expand capacity at overseas production sites in a timely manner

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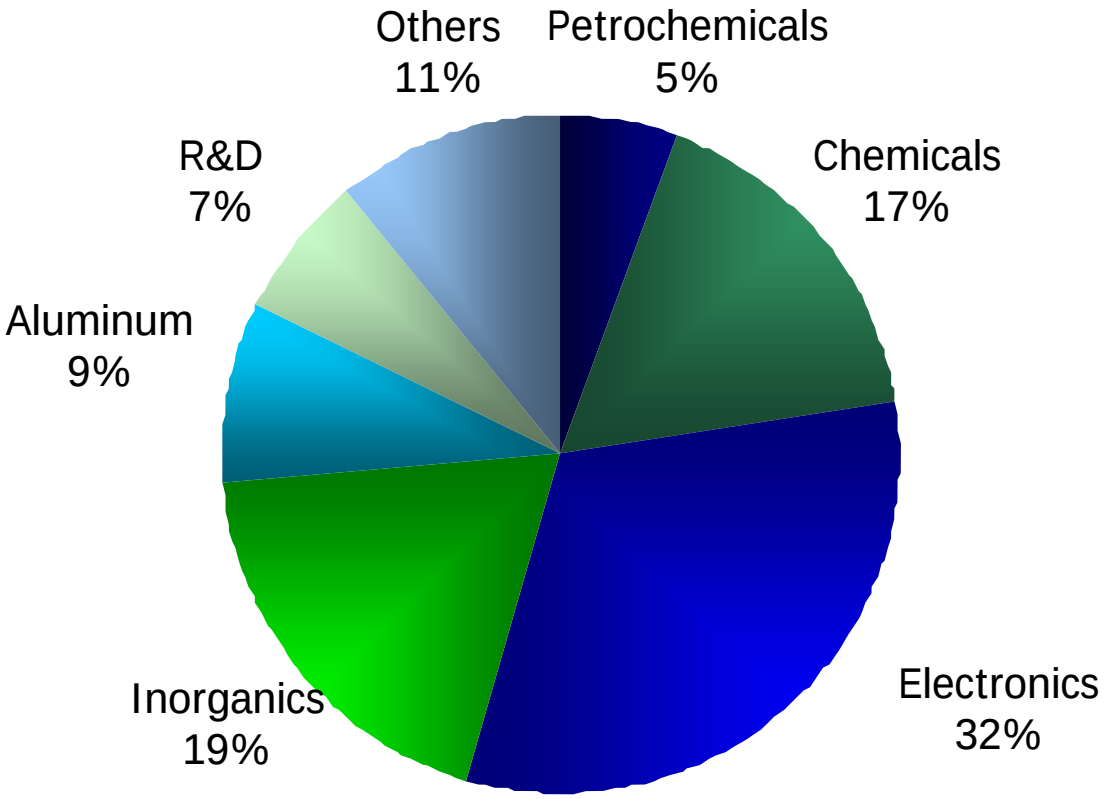
Capital investment plan

We will invest ¥220 billion in the 2011~13 period



Allocation by Segment

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■ Highlights of business strategy

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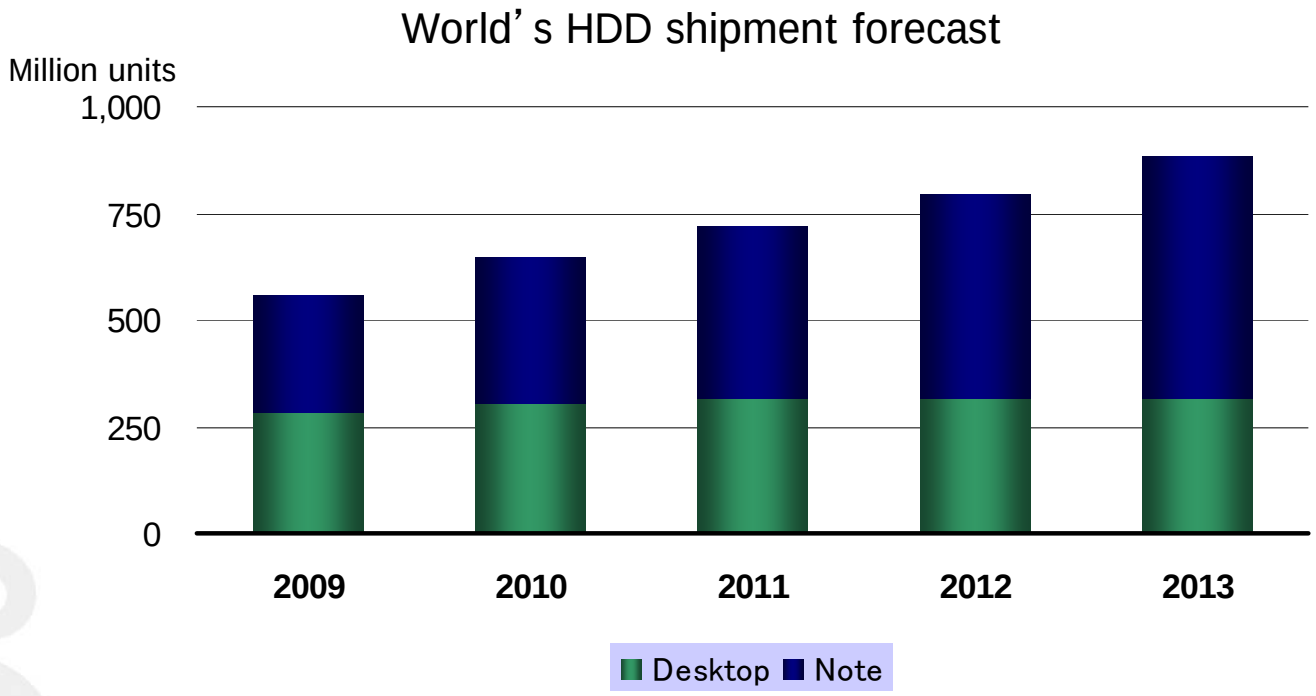
HD media

HDD shipments to grow 10% a year

- HDDs for notebook PCs will continue high growth, centering on emerging countries.
- Demand will grow for HDDs used in data centers, reflecting the increase in the amount of information on a global scale.



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HD media

Expand business by providing “best-in-class” products

- Develop most advanced next-generation HD media
  - Commercial production of 6G PMR media and SWR media
- Increase production capacity
  - Expansion in Singapore (Location best for customers; excellent business infrastructure)
  - Maximize capacity of existing facilities (Achieve the strongest cost competitiveness)
- Solidify business foundations
  - Expand and strengthen relationship with customers

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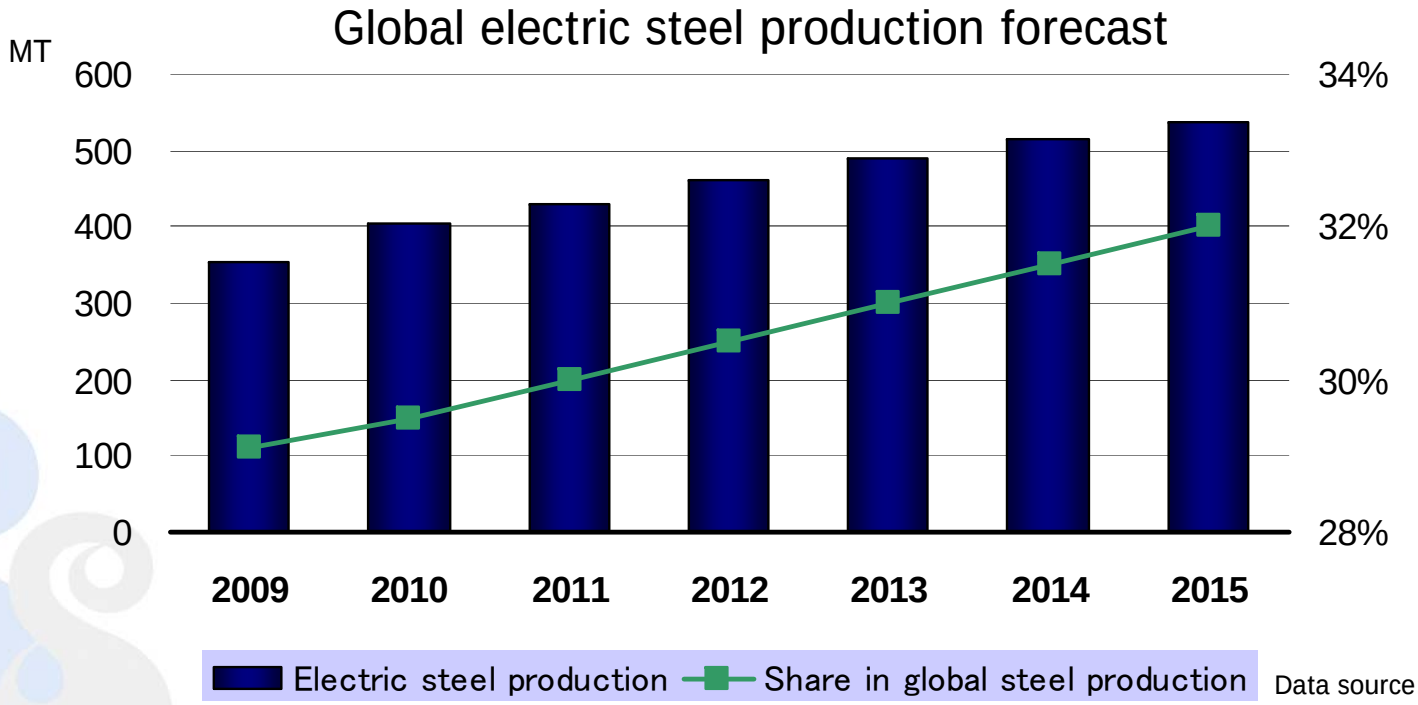
Graphite electrodes

Electric steel production will continue to grow.

- Increasingly important, in view of recycling and reduction of environmental load.
- Due to high investment efficiency, production will grow mainly in emerging countries.
- Demand for graphite electrodes will also grow.



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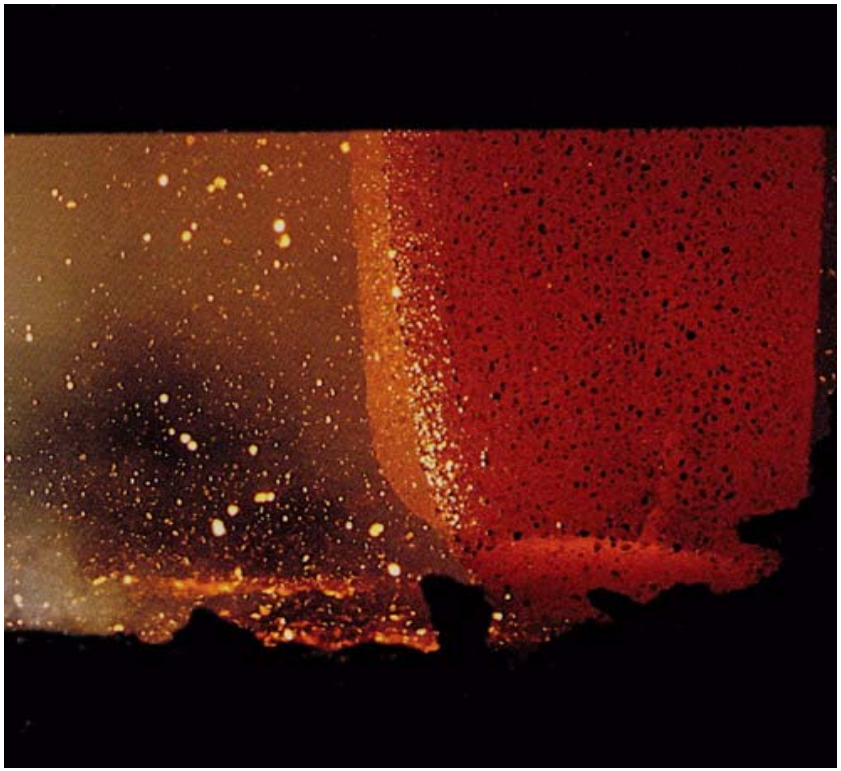
Graphite electrodes

Expand capacity to meet growing demand

- Capacity expansion
  - Expansion in the U.S.
  - Strengthening operations in Japan
  - The third production base under consideration
- Secure stable supply of feedstock
- Increase sales in emerging countries
- Develop production technology
  - High-quality large-diameter electrode production technology
  - Further improvement in productivity



Showa Denko graphite electrode in use

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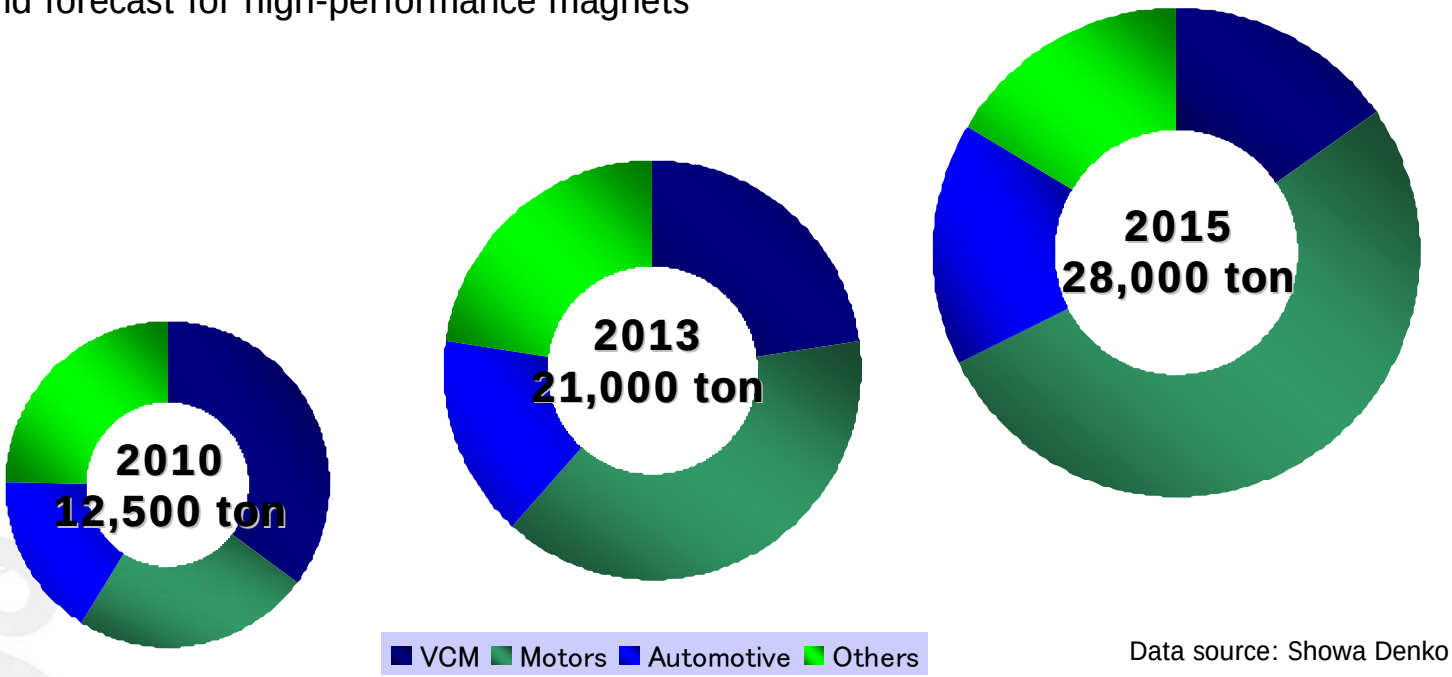
Rare earths

High-performance magnet market will grow 10% a year.

- Demand will grow in the areas of cars, energy-saving appliances, and FA.
- Strong demand expected in emerging countries and clean energy market.

Demand forecast for high-performance magnets



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Rare earths

Gain the position of Nr. 1 maker of high-performance magnetic alloys

- Sales
  - Increase domestic market share
  - Expand overseas sales
- Stable procurement of raw materials
  - Diversify sources through close tie-up with Chinese suppliers
  - Promote recycling and refining operations in Vietnam
- Technology development
  - Develop next-generation magnetic alloys
- Production increase
  - Expansion in response to demand growth

Showa Denko Rare-Earth Vietnam

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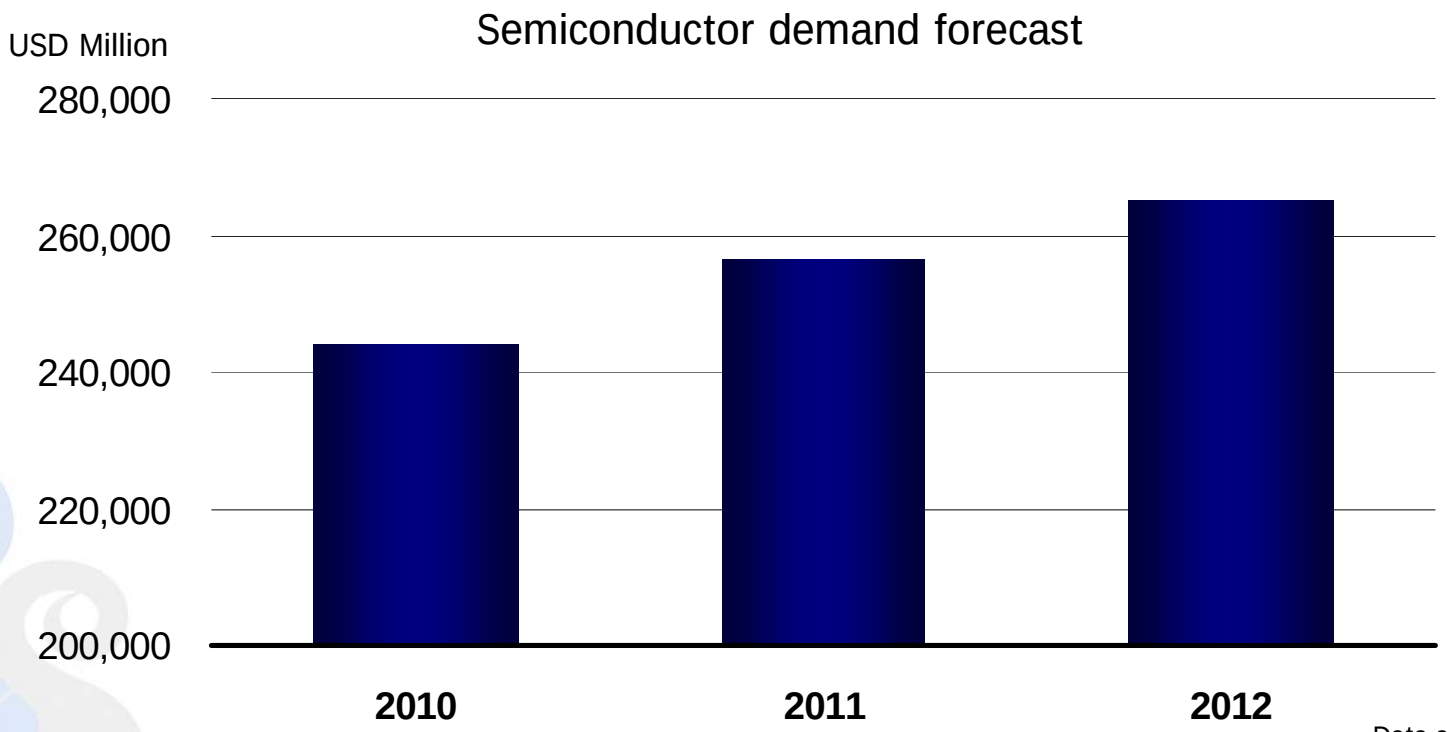
High-purity gases for semiconductor processing

Demand is up with the growth of the electronics industry

- Demand growing for use in the manufacture of silicon-based semiconductors, LCDs, compound semiconductors, and solar cells
- Also used increasingly for deposition of oxide/nitride films



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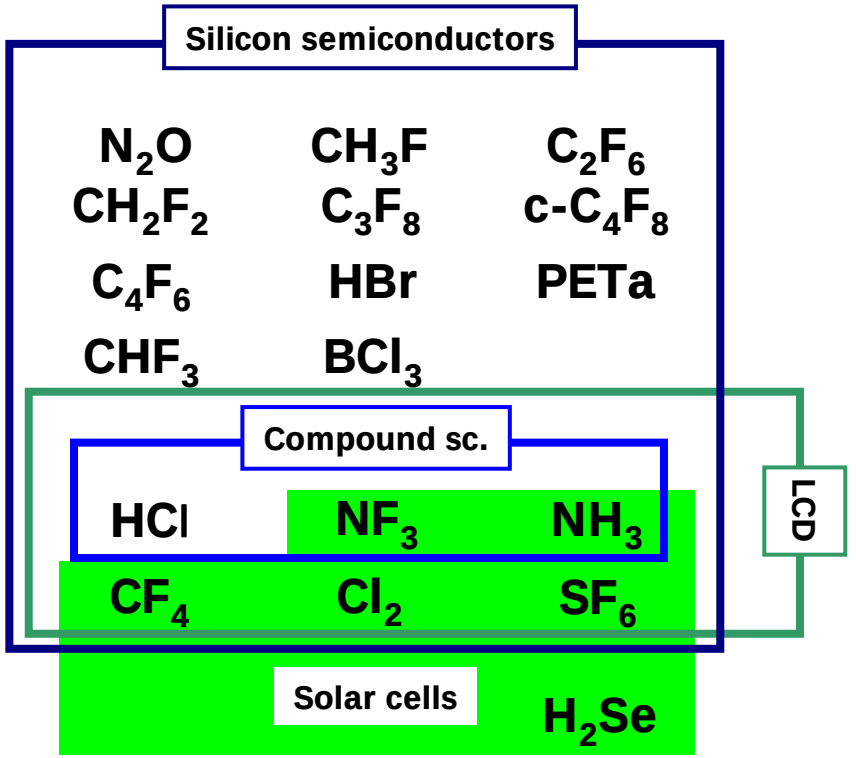
High-purity gases for semiconductor processing

Increase profit by successively launching eco-friendly new products

- Strengthen presence
  - Advance into Asian markets, centering on China, Taiwan and Korea
  - Quick commercialization of products for solar cells
    - Decided to establish JV for hydrogen selenide (H_2Se)
- Develop new products
  - Next-generation high-purity gases for film deposition
  - Expand the customer base in growing markets through direct-sale system



Showa Denko's high-purity gases for semiconductor processing

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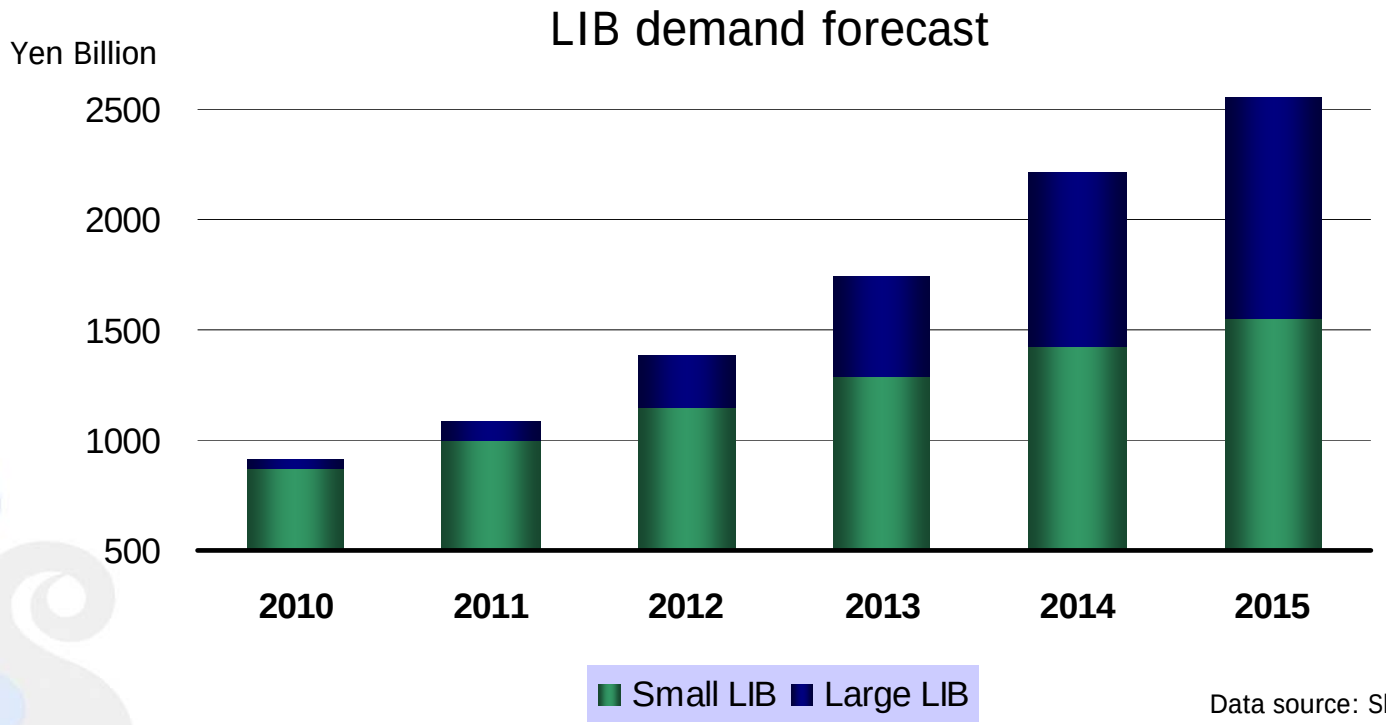
Battery materials

Auto applications driving the LIB market growth

- The large-size LIB market is expanding quickly. Besides automobile applications, LIB demand is sharply increasing in storage battery and industrial applications.
- LIBs for notebook PCs and power tools will grow 10% a year



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Battery materials

Strengthen presence with individualized products

- Anode material (SCMG™)
  - Increase share in the large LIB, emphasizing SCMG's long life.
  - Develop products and processes meeting market requirements
- Aluminum packaging materials
  - Keep Nr. 1 share in the small LIB through timely capacity expansion
  - Develop products for the large LIB through integration of proprietary technologies
- Additive in anodes/cathodes (VGCF™)
  - Aim to further improve product quality as "only one" product on the market
  - Improve productivity; expand capacity in response to demand growth

SCMG™

VGCF™

Aluminum packaging materials

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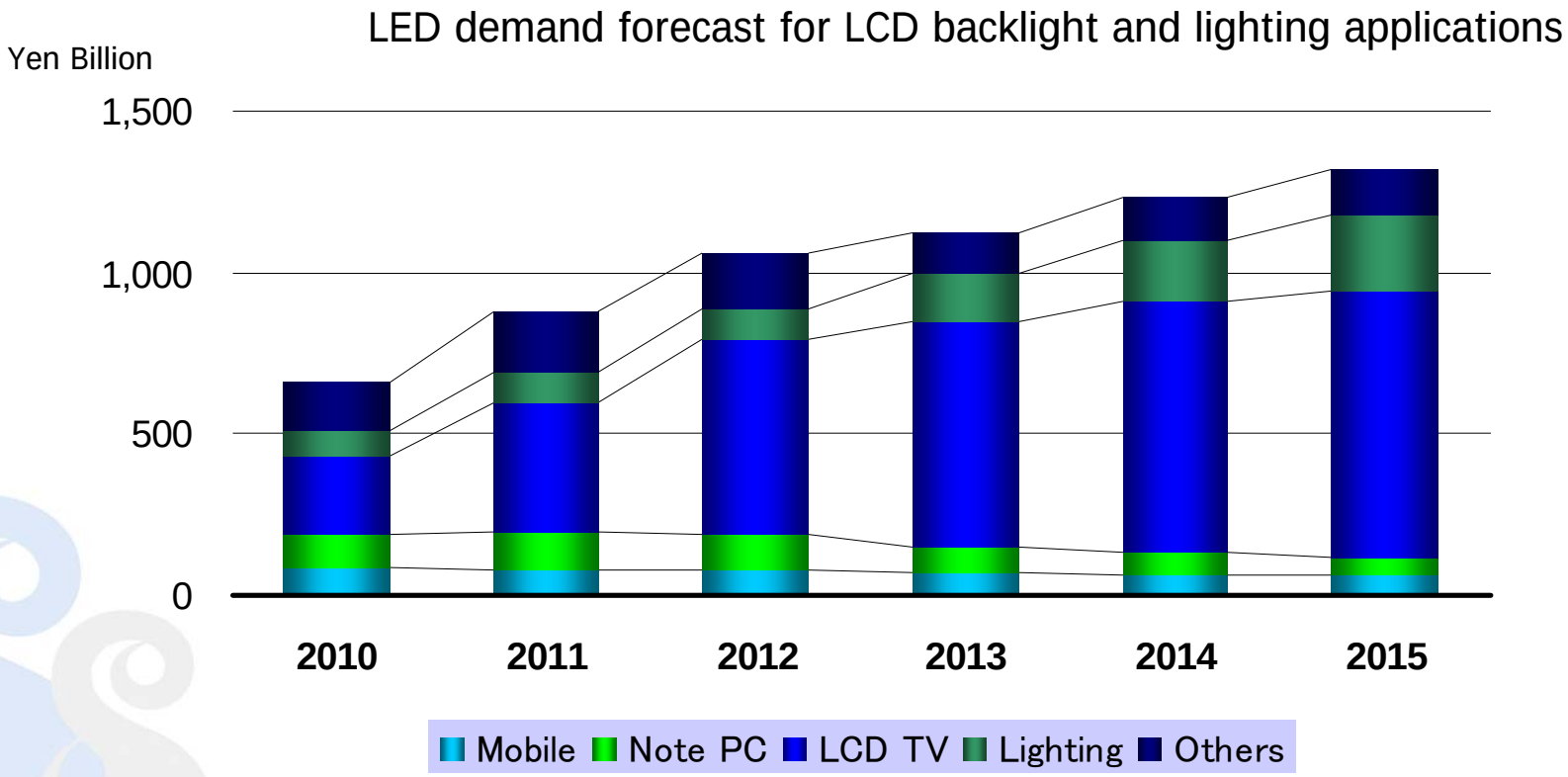
High-brightness LED market will grow to ¥1.3 trillion by 2015

- Steady growth centering on LCD backlight and lighting applications
- Changing into a huge market, involving many players



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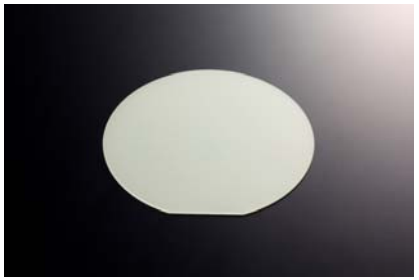
LED

Aim to expand business, focusing on areas of our strength

- Take measures that will lead to our growth in the big growing market
- Initiate GaN epitaxial wafer business utilizing our proprietary technologies (large diameter; Hybrid PPD™)
- Strengthen competitiveness of the chip business by improving characteristics and productivity



Epitaxial Wafer

LED Chip

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Petrochemicals

Supply-demand gap will disappear in few years.

- Ethylene supply is globally exceeding its demand due to start-up of many new plants. However, the supply-demand balance will be recovered, in or around 2013, due to growing demand in emerging countries.

- As for propylene and C4, their supply-demand gap is relatively small and recovery will take place at higher speed.

- In the acetyl derivatives business, the spread has decreased, reflecting the rapid expansion in acetic acid production capacities in the world. However, acetyl derivative demand is growing for high-value-added applications.

- Demand is growing for high-value-added allyl derivative products.

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Petrochemicals

Maximize cracker competitiveness and speedily make new businesses profitable

- Keep the position of our ethylene plant as one of the most competitive naphtha crackers in the world
- Strengthen the whole complex through cooperation with upstream and downstream partners
- Increase added values of cracker by-products
- Carry out structural reform, including alliances, of the acetyl derivative business
- Speedily commercialize new allyl derivative products through our proprietary technologies

New cracking furnaces

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■ R&D strategy

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Domain-focused technology strategy

Energy / Environment **Electronics**

Interconnection of inorganic and organic chemical technologies
“Accumulation and creation” “Inside and outside”

”Base technologies” to be inherited	“Key technologies” to be refined	“Innovative technologies” to be developed
Base technologies accumulated over many years	Advanced technologies serving as “weapons”	Technologies that should be acquired to start new businesses
Organic synthesis process	Organic molecular design	Nano-structure control
Inorganic synthesis process	High-performance catalysts	High-grade surface treatment
Surface and interface chemistry	Organic electronic materials	Functional liquids
Biochemistry	Magnetic recording materials	Fluorochemicals
Electrochemistry	Fluorine and functional gases	Chemical bio-process
Device technology	Functional metallic materials	Roll to roll
Crystal/wafer process	Thin film deposition process	Nano-imprinting
Aluminum casting process	Carbon structure control	
Aluminum fabricating process		
Computational science		

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R&D strategy

Accelerate commercialization of four important themes

- The following 4 important themes have been selected through careful screening:
  - Advanced battery materials
  - SiC epitaxial wafers for power devices
  - Heat-resistant transparent films
  - Organic EL for general lighting

- Actively utilize outside resources and partnership for commercialization

- Establish development pipeline
  - Choose themes for search from the two business domains
  - Further strengthen key technologies; Acquire innovative technologies

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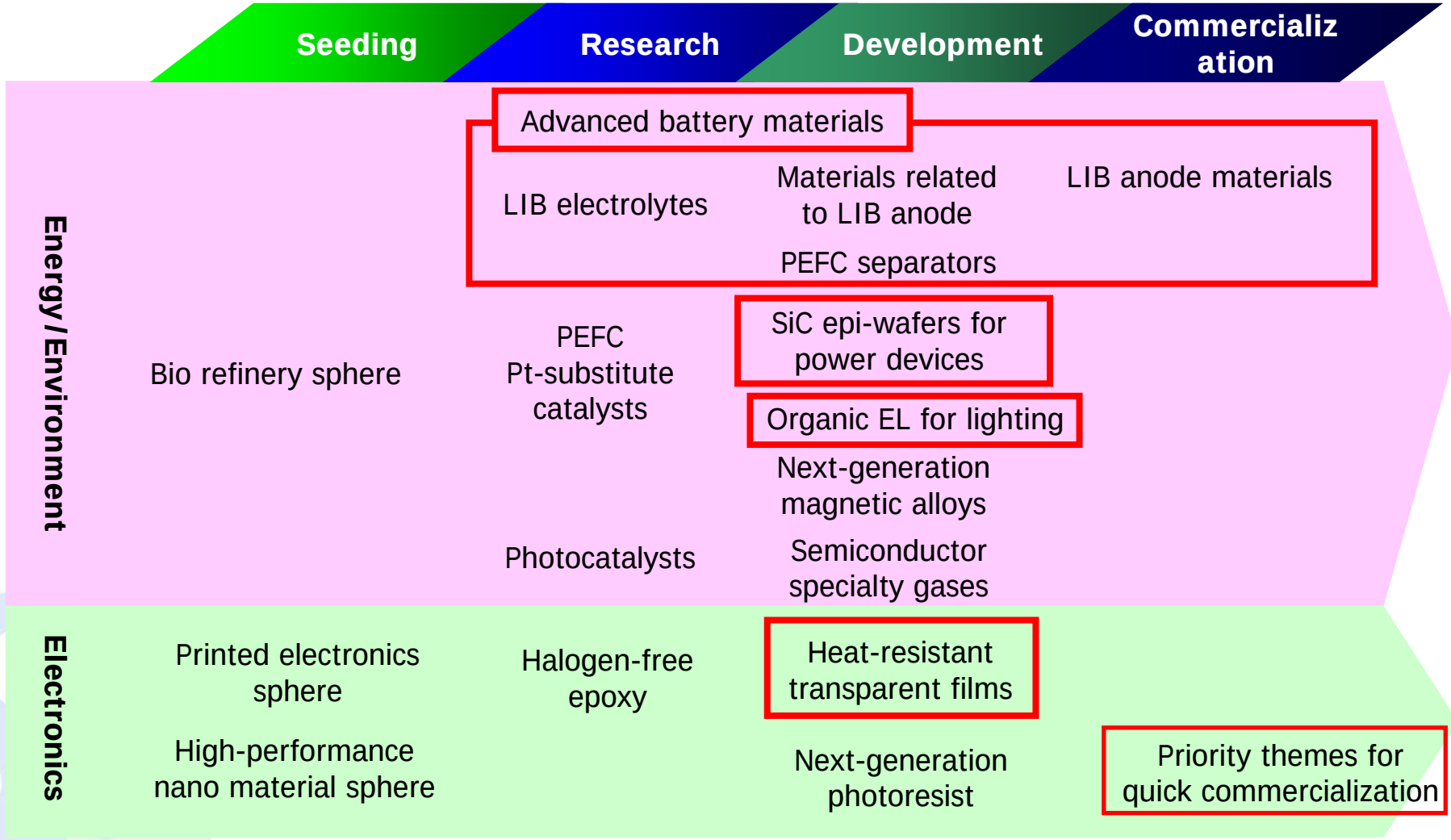
R&D themes pipeline

Concentrate R&D resources on two business domains



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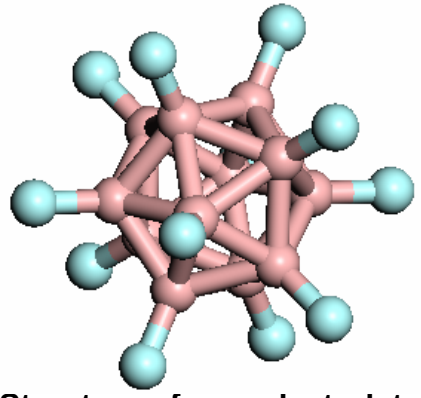
Advanced battery materials

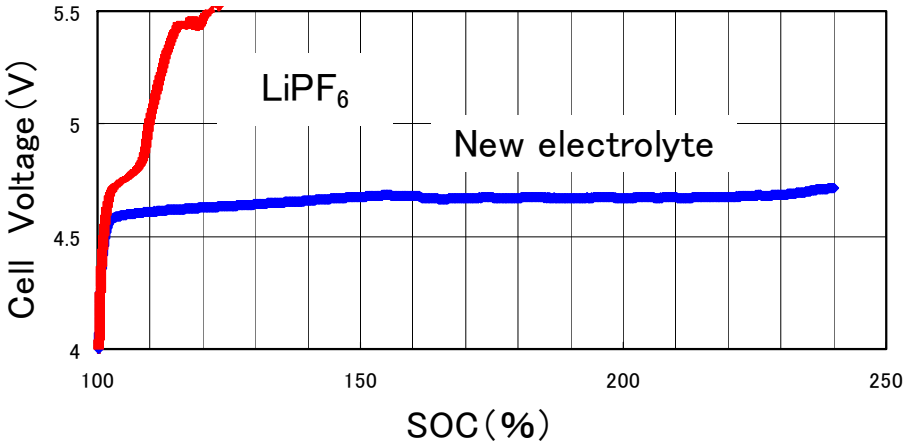
Develop LIB electrolyte / electrolyte solution with high thermal stability

- New electrolyte salt
  - High thermal stability, enabling improvement in battery's heat resistance
  - No generation of acids; compatible with cathodes
  - Prevents over-charge (a redox shuttle system)
- Incombustible solvent
  - Develop an incombustible solvent, fully utilizing our fluorination technology
- Commercialization
  - Establish technology for EVs by 2012
  - Aim to commercialize by 2015



Structure of new electrolyte ($B_{12}F_{12}^{2-}$)

Comparison of overcharge performance



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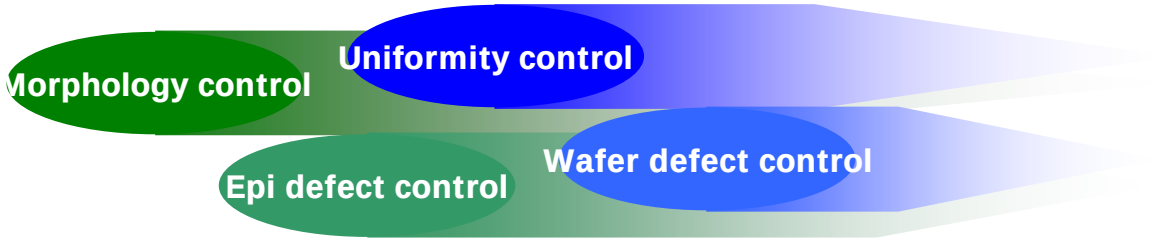
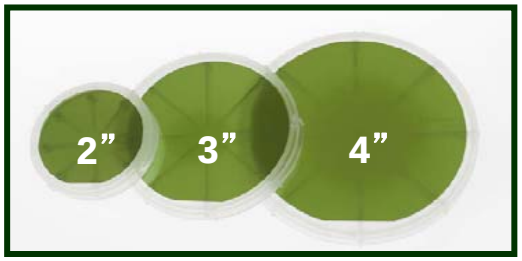
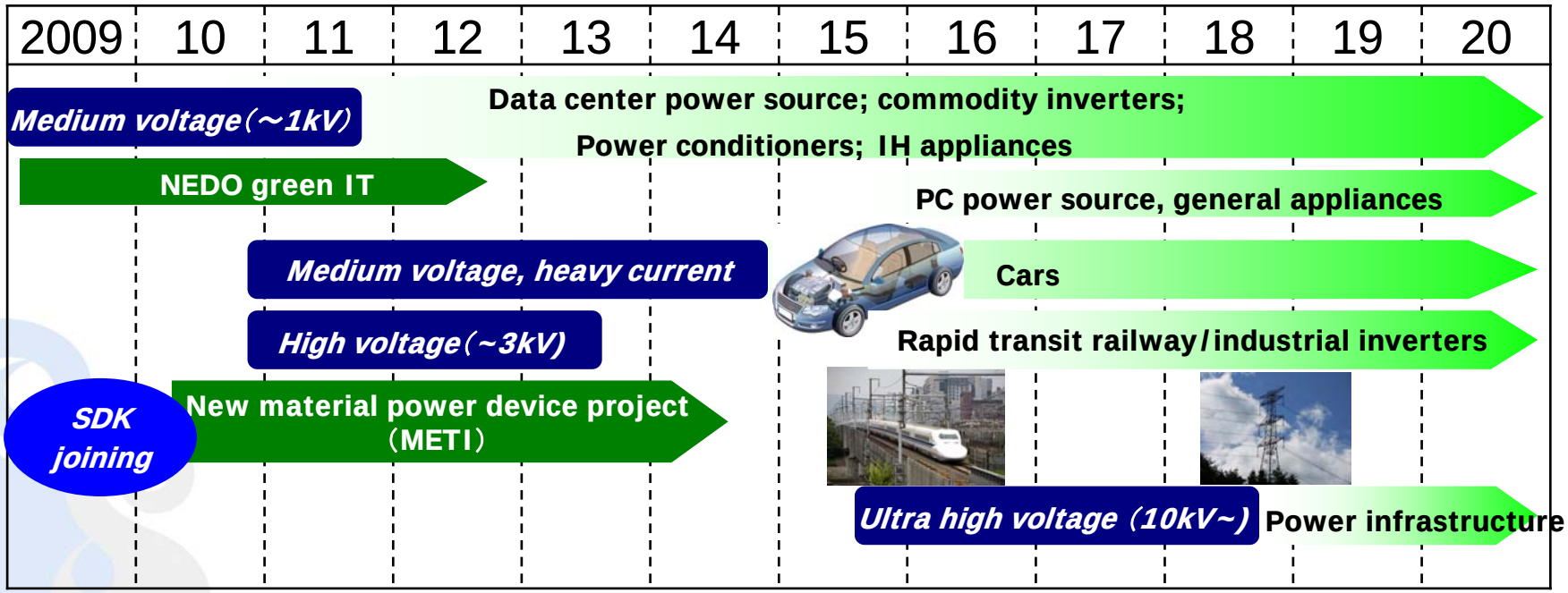
Priority themes for quick commercialization

SiC epitaxial wafers for power devices

■ **Provide high-quality SiC epi-wafers through integration of multiple technologies**
■ **Promote industrialization as a major member of METI's project**







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Heat-resistant transparent films

Glass-substitute material for use in touch screens

- High transparency and heat resistance
  - Using resin technology for glass lens applications
- Highest-level performances
  - Heat resistance: Usable in high-temperature processes of up to 250℃
  - Optical characteristics: High light transmittance of 92%; Low double refraction
  - Surface characteristics: High surface hardness of 3H or more (in pencil hardness)
- Setup for commercialization
  - A pilot plant at Oita Complex
  - Ready to provide samples in the form of rolls and sheets

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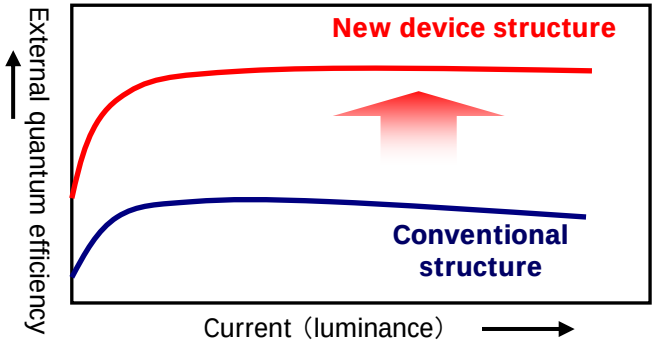
Organic EL for general lighting

Combination of printable phosphorescent polymer and proprietary device structure; Started sample shipments for lighting applications

- Achieved 40 lm/W based on proprietary white-light emitter and device structure



trial model of lighting panel

- Development roadmap

	White lighting (efficiency, life)	Cost per lm
2013	40 lm/W 10,000 hrs.	Approx. ¥10
2015	80 lm/W 40,000 hrs.	Approx. ¥4

- For high-efficiency/long-life white lighting applications
- Incandescent/fluorescent lamp replacements; illumination panels, etc.

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Themes for seeding

Aim to commercialize technologies / materials that can be widely used in targeted business domains

Energy / Environment

Bio refinery sphere

- High-quality, low-cost, and carbon-neutral chemicals based on inedible biomass

Protect global environment
Reduce CO_2 emissions
Reduce the use of fossil fuels

High-performance nano material sphere

- Quantum dot
- Graphene
- Next-generation storage materials

Dramatically increase efficiency using next-generation nano materials

Electronics

Printed electronics sphere

- Printable functional ink
- Printable plastic substrates
- Roll-to-roll printing technology
- Selective heating/sintering technology

IT chemicals integration based on printed electronics technology

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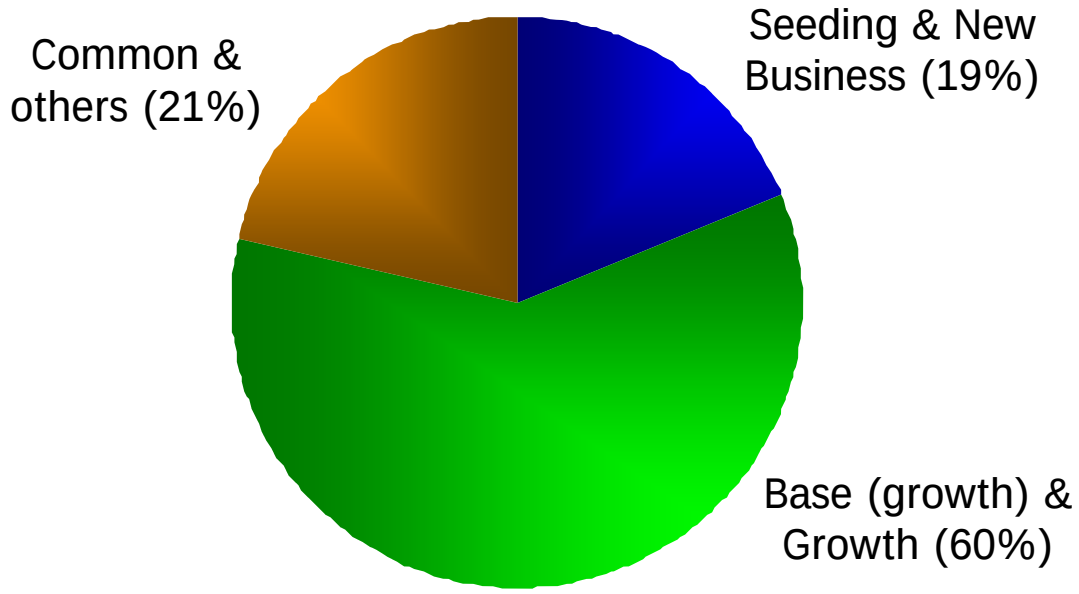
R&D expenditures

Allocate 60% to “growing base businesses” and “growth businesses”

- Promote long-term R&D to be directly linked to business growth
- Acquire innovative technologies through concentration on themes for seeding and new business



R&D investments in the 2011-15 period: ¥120 billion

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Evolving unique chemical company

Showa Denko K. K.

Speedy Dynamic KODO

(action)

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