

Becoming a global steel supplier that steadily creates new value and grows with its customers.

The Fifth Medium-term Business Plan covers key measures for JFE Steel to enhance production capabilities, reinforce world-class technological development, strengthen customer-oriented marketing, develop business overseas, pass on technical skills and develop human resources.

We have strengthened our manufacturing bases in Japan by steadily upgrading our facilities, mainly for upstream processes, and by recruiting and developing diverse human resources. At the same time, we have heightened our presence by investing in countries with growth potential, such as Mexico and Vietnam.

In addition, we have restructured our JFE Steel group to unleash our comprehensive capabilities, including for closer collaboration in product development and sales.

Going forward, we will continue to respond flexibly to changes in society, including to strengthen our revenue base.



President and CEO
JFE Steel Corporation

Koji Kakigi

Efforts of JFE STEEL

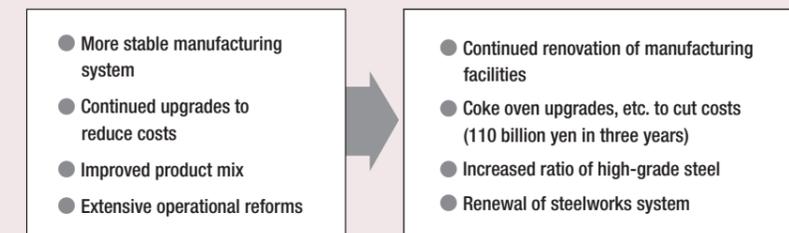
Improving manufacturing capabilities

Continuing from the previous medium term, we will further upgrade our manufacturing capabilities, aiming to expand annual sales of JFE-brand steel to 50 million tons and raise return on sales (ROS) to 10%.

Strengthening manufacturing bases in Japan

JFE Steel will make capital investments to strengthen its manufacturing base in Japan with more stable production, reduced costs and a product mix focused on high-grade steel.

Increasing capital investments in Japan: Invest 650 billion yen over the three-year period, up 170 billion yen from the previous period.



Developing overseas business

JFE Steel will strive to increase its profitability by investing in overseas projects, mainly in Asia, and by leveraging its technological advantages to expand in prioritized business fields.

	Business strategies	Prioritized region	
Prioritized business fields	Automobiles	Accelerated global procurements	China, Thailand, Indonesia, India and North America
	Energy	Localization in regions of demand	North America and UAE
	Infrastructure materials	Growing Asian markets	Vietnam

Enhancing technological development

JFE Steel is deploying innovative technologies to reduce costs in upstream processes and data-driven process-control technologies for more stable production.

	Developmental strategies	
Prioritized business fields	Automobiles	Ultra-high tensile strength steel and production technologies for overseas steel plants
	Energy	High-quality thick steel plates utilizing innovative TMCP technology and electrical steel sheets offering superior magnetic characteristics
	Infrastructure materials	Steel materials that combine good appearance, functionality, quake-resistance and easy processing for buildings

Support these initiatives by:

- Transferring skills and developing talented personnel
- Strengthening customer-focused sales

Strengthening Manufacturing Bases in Japan

Active capital investment and restructuring to reduce costs and stabilize manufacturing

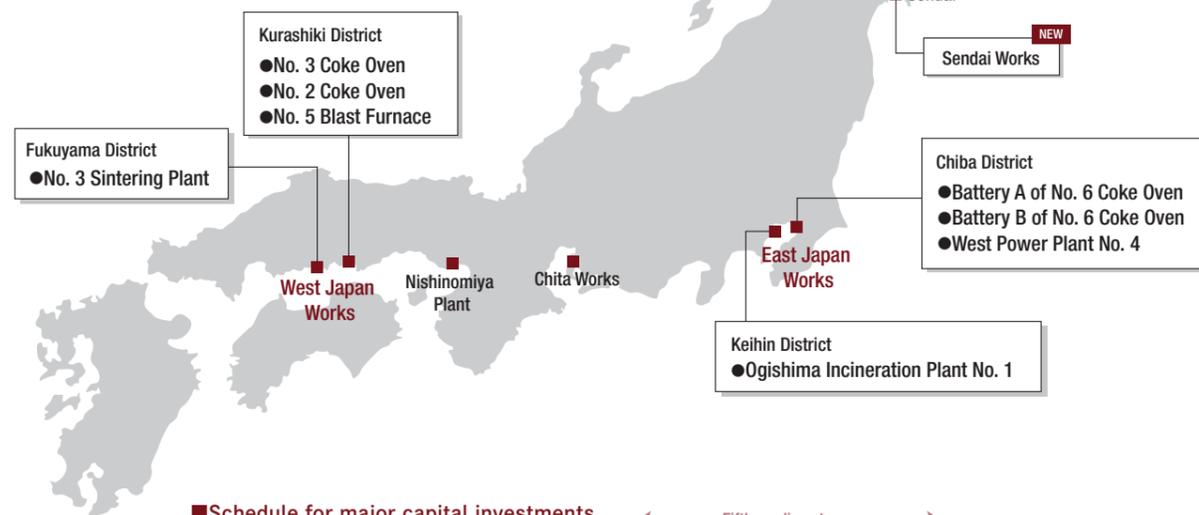
Steel demand in Japan looks strong in light of active corporate activities and construction related to infrastructure for the Tokyo 2020 Olympic and Paralympic Games. The company is fully pursuing this demand while also investing to reduce costs and further stabilize production.

To shift the product mix to higher-grade steel for improved competitiveness, facility upgrades and related investment

have continued to be carried since the previous medium-term. In addition, the company's steelworks system is being upgraded with information and communication technology.

Furthermore, the business is being restructured from a long-range perspective in anticipation of future needs to optimize the business overall, including the steel actually produced.

Major capital investments



Schedule for major capital investments

Process	District	Facility	Fifth medium-term					
			FY2014	FY2015	FY2016	FY2017	FY2018	FY2019
Upstream process	Kurashiki	No. 3 Coke Oven			Operating since January 2016			
		No. 2 Coke Oven			Operating since March 2017			
	Chiba	Battery A of No. 6 Coke Oven			Operating since October 2016			
		Battery B of No. 6 Coke Oven		Operation scheduled to start in 2018				
Fukuyama	No. 3 Sintering Plant		Operation scheduled to start in 2019					
Hot-rolling	Kurashiki	No. 5 Blast Furnace			Operating since March 2017			
Energy	Chiba	West Power Plant No. 4		Operating since July 2015				
	Keihin	Ogishima Incineration Plant No. 1		Operation scheduled to start in second half of FY2019				
System		Core system for steelworks (Phase 1)		Scheduled completion in the second half of FY2018				

Started operating → Operation scheduled to start →



Improving upstream facilities (coke ovens, sintering plants, etc.)

We are enhancing our world-class manufacturing capabilities by upgrading facility functions for upstream processes, such as coke ovens in our Chiba and Kurashiki districts.



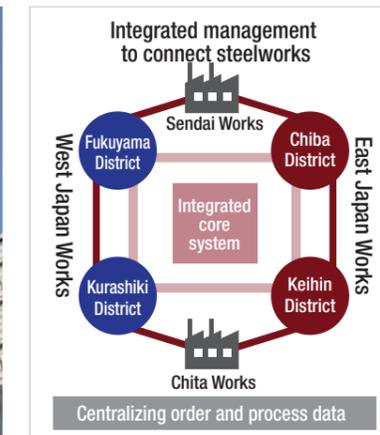
Improving manufacturing capabilities

A fifth blast furnace has been added at the hot strip mill in the Kurashiki District to increase our manufacturing capacity for hot-rolled steel sheet and to reduce CO2 emissions through better energy efficiency.



Improving energy facilities

We introduced leading-edge power-generation facilities in our Chiba and Keihin districts to maximize use of gas obtained as a by-product at steelworks and thereby lower environmental loads and costs.



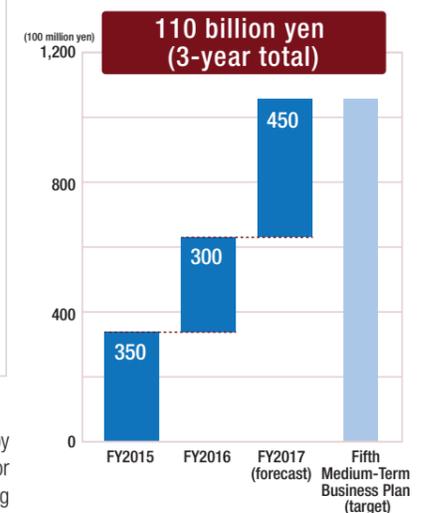
System reform to connect steelworks

Coordination is being strengthened by centralizing a core system database for all manufacturing bases and renovating production and quality-control systems. Also, initiatives are being taken to improve work efficiency and carry out workstyle reforms.

Cost reduction

While the Japanese market condition is gradually recovering as demands for steel materials in the automobile and construction industries increase, a sharp rise in the price of coking coal has triggered a significant cost increase. Consequently, costs must be promptly reduced by introducing efficient new facilities.

By investing in new coke ovens and improving various work procedures, JFE Steel aims to achieve accumulative cost reductions of more than 110 billion yen over the three years to FY2017.



Group Restructuring for New Era of Enhanced Synergy

<p>JFE Plant Engineering Merger of JFE Mechanical and JFE Electrical & Control Systems April 2016</p> <p>JFE Mechanical's business for mechanical system maintenance, construction and engineering has been merged with JFE Electrical & Control Systems' electrical and control systems business to create a core company in charge of maintaining and upgrading steelmaking facilities. An envisioned expansion of business scale is expected to enhance the company's competitiveness and ability to develop new businesses and respond to diverse facility needs in wide range of industrial fields.</p>	<p>JFE Welded Pipe Manufacturing JMerger of small-diameter electric resistance welded (ERW) pipe businesses of JFE Steel, JFE Welded Pipe Manufacturing and Kawasaki Kokan April 2017</p> <p>For further growth and development of small-diameter electric resistance welded (ERW) pipe business, JFE Steel, JFE Welded Pipe Manufacturing and Kawasaki Kokan were merged to consolidate the technologies and human resources and thereby strengthen sales capabilities in Japan and abroad.</p> <p>*Small-diameter ERW pipe manufacturing conducted at JFE Steel's Chita Works was transferred to JFE Welded Pipe Manufacturing on October 1, 2017.</p>	<p>Integration of Steel Bar Business April 2017</p> <p>Sendai Works was transferred from JFE Bars & Shapes to JFE Steel to support overseas expansion and improve competitiveness in Japan going forward. Also, the Steel Bars and Wire Rods Department, which integrates product development, sales and production, was established for the prompt development and implementation of strategies and to accelerate exchanges of technology and personnel.</p>
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Efforts of JFE STEEL-2

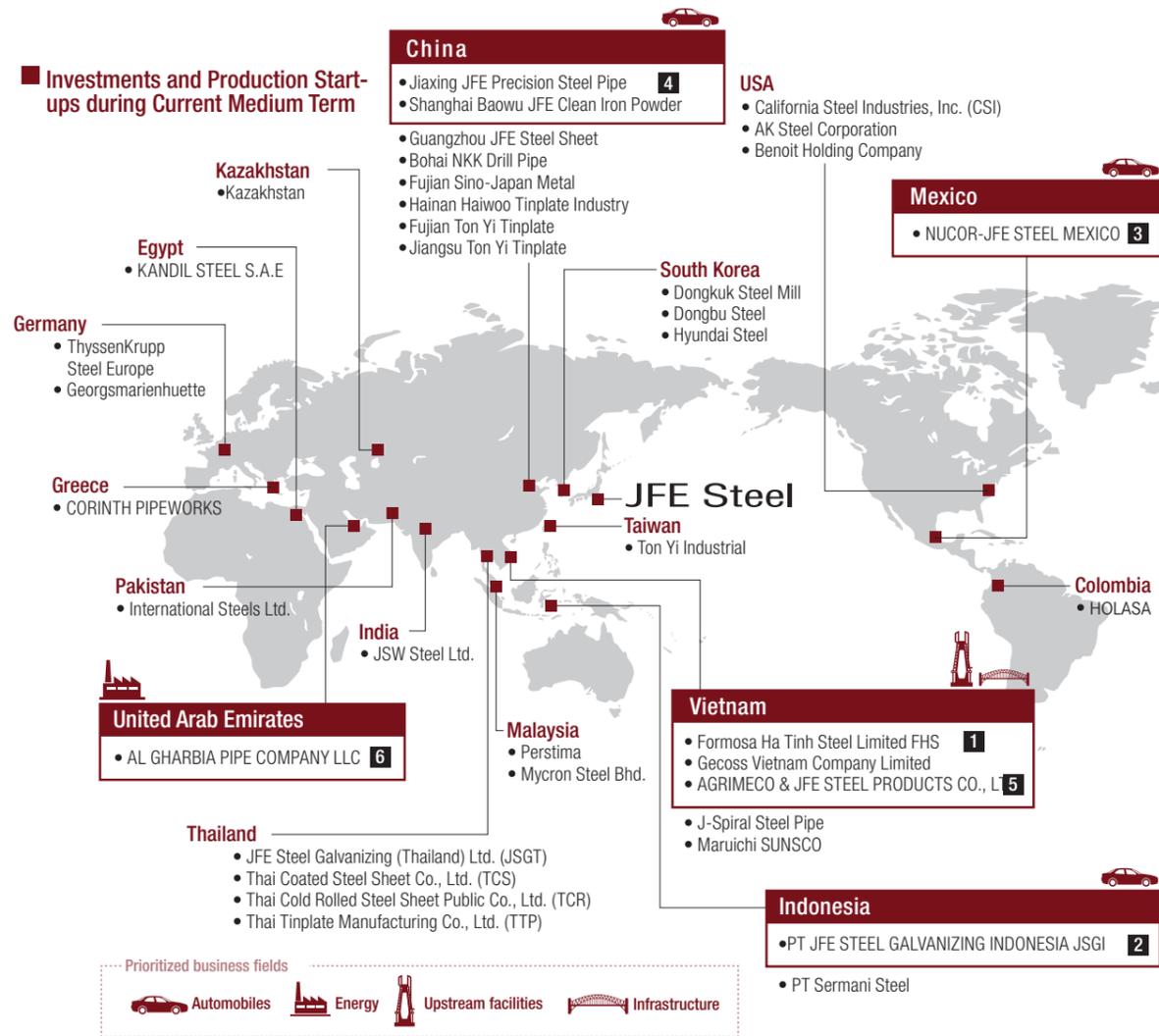
Expansion of Overseas Business

Grasping the Needs of Fast-growing Markets

Demand for steel is expected to increase in fast-growing, so JFE Steel is actively expanding its business overseas, especially in Asia, to capture this demand.

The Fifth Medium-term Business Plan prioritizes automobiles, energy and infrastructure as key business fields and expansion into Mexico and the UAE.

We will leverage our high technical capabilities and know-how to partner with global leaders and local companies to supply high-quality steel that meets the local needs.



1 Securing interests in upstream facilities in Vietnam

JFE Steel has taken a stake in an integrated steelworks project (FHS) being constructed in Vietnam's Ha Tinh Province by Formosa Plastics Group (FPG), a Taiwanese integrated supplier of petrochemicals. JFE Steel initially expects to provide operational support from an early stage and eventually aims to grow the JFE brand in Vietnam by selling locally made products to partners and customers.



2 JSGI operating Indonesia's first continuous galvanizing line for vehicles

PT. JFE Steel Galvanizing Indonesia (JSGI) began operating Indonesia's first continuous galvanizing line (CGL) for vehicles in January 2016. The company is satisfying demands for locally procured steel sheet for luxury automobiles made in the growing Indonesian market, one of the leading automobile production bases in Southeast Asia.



3 New joint venture to produce auto steel sheet in NAFTA region

JFE Steel and Nucor Corporation, the largest steelmaker in the United States, established a joint venture in Mexico to manufacture and sell steel sheet in high demand for automobiles made in North America. A continuous galvanizing line will be built in central Mexico and start production in 2019.



4 New companies to produce steel pipes and iron powder in China

In China, where automobile production is expected to increase, Jiaxing JFE Precision Steel Pipe Co., Ltd. (JJP) began operating as a joint venture company of JFE Steel, Marubeni-Itochu Steel Inc. (MISI) and Shuan Hwa Industrial Co., Ltd., Taiwan's largest cold drawn pipe manufacturer. In addition, Shanghai Baowu JFE Clean Iron Powder Co., Ltd., which manufactures and sells segregation-free premixed iron powders, was established by JFE Steel and a subsidiary of China Baowu Steel Group Corp., Ltd.



5 New joint venture in Vietnam to sell processed construction materials

Vietnam has an extensive plan to construct roads, railways and other transportation infrastructure, as well as power plants. To capture this steady demand, JFE Steel and AGRIMECO, a leading construction and material processing company in Vietnam, established a joint venture company, AGRIMECO & JFE STEEL PRODUCTS CO., LTD. (A&J), to sell processed construction materials in the local market.



6 New joint venture for large-diameter welded steel pipe in UAE

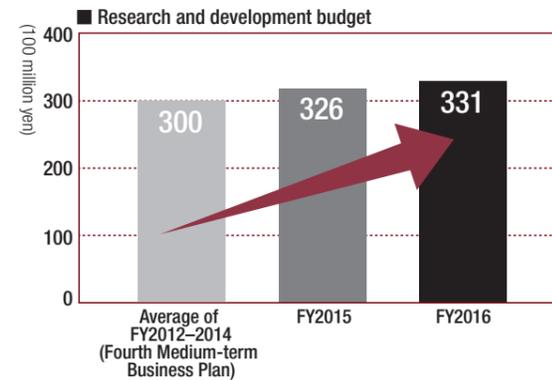
AL GHARBIA PIPE COMPANY held a groundbreaking ceremony for a large-diameter welded steel pipe plant in Abu Dhabi in April 2016. The company is a joint venture established by JFE Steel, Marubeni-Itochu Steel Inc. and SENAAAT, an investment company wholly owned by the Emirate of Abu Dhabi. Construction is targeted at commercial manufacturing starting up in October 2018.

Efforts of JFE STEEL-3

Furthering Research and Development

Technological development to maximize iron's potential

The Fifth Medium-term Business Plan strengthens initiatives for technological development. With an eye on 10 years ahead, JFE Steel is developing products and application technologies that anticipate the future needs of customers and society, as well as world-class global environmental technologies and resource-conservation technologies. At the same time, the company is firmly moving forward with efforts targeting innovative new processes for groundbreaking products, including manufacturing technologies for extra-high-quality products.



Product Development



ECOGAL-Neo®

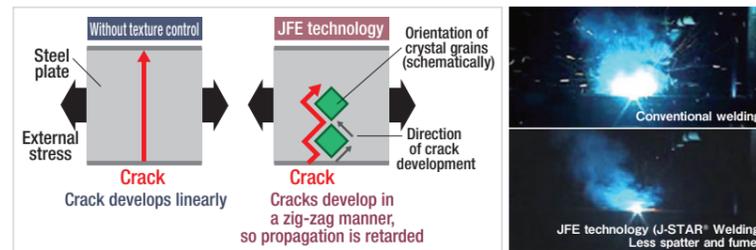
ECOGAL-Neo® boasts improved surface appearances for electric appliances, building materials and automobiles, plus the same excellent formability and weldability of the original ECOGAL. It is produced by JFE Steel and sold jointly with JFE Galvanizing & Coating.



1.6-meter prototype

Accumulator for hydrogen filling stations

JFE Steel and JFE Container have developed accumulators that reduce the construction costs of hydrogen filling stations. Designed by JFE Container, the accumulators store hydrogen in special liner units made with steel pipes wound with carbon fiber.



Crack arrest steel plates and design and welding technologies for mega container carriers

YP460 N/mm² class heavy, thick plate with excellent crack arrest enables increasingly large container carriers to be built for improve shipping efficiency. At 100 mm, the plate boasts unrivaled thickness and unprecedented weldability and crack arrest. Furthermore, JFE Steel and JMU jointly developed technology for structurally brittle crack arrest that retards the development of brittle cracks on mega container carriers. Narrow-gap arc welding incorporating J-STAR® technology is used for improved production efficiency.



Buckling-restraint J-ROD® Brace featuring excellent designability

Steel building materials

The Construction Material & Services Center was established in 2015 to advance strategic product development and sales expansion. JFE Steel develops products and construction methods with customers and group companies such as JFE Civil Engineering & Construction Corporation and JFE Metal Products & Engineering.



Bumper reinforcement made of 1,470 MPa-grade ultra-high-strength steel sheet

Steel sheet for automobiles

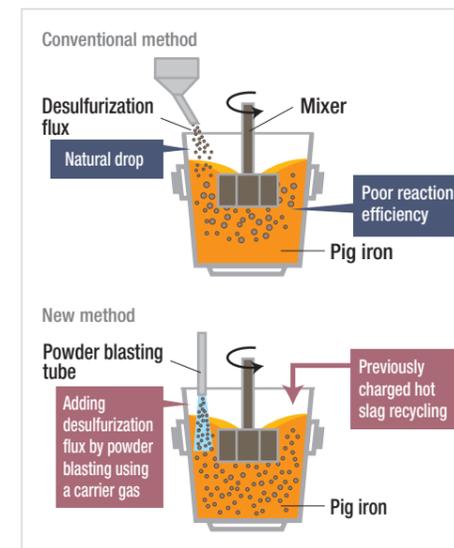
We are developing high-tensile-strength steel for improved collision safety and vehicle weight reduction that leads to better fuel efficiency for reduced CO₂ emissions. Efforts are also being pursued to achieve enhanced formability necessary for certain components.

Developing New Processes



Highly productive hot-rolling skin pass mill with intelligent control

In response to customer requests for further quality improvement, JFE Steel developed the world's first hot-rolling skin pass mill incorporating smart control technology. The world's fastest automatic rolling is achieved by optimally controlling plate thickness, shape and lateral movements and many other variables during threading. The mill's advanced efficiency and quality will help to increase production volume and improve profitability.



Eco-friendly high-efficiency hot metal desulfurization

We have developed desulfurization flux powder blasting and hot slag recycling methods for molten iron pretreatment. They are implemented in all of our steelworks with equipment for mechanically stirred hot metal desulfurization. Compared to conventional processes, these new techniques roughly double desulfurization flux efficiency and reduce desulfurization slag generation by about 30%, thereby contributing to energy efficiency, resource recycling and environmental protection.

JFE STEEL HIGHLIGHT 2016

2016

- April**
 - Groundbreaking ceremony for large-diameter welded steel pipe plant in UAE
 - Minister of Education, Culture, Sports, Science and Technology Award for high-speed rolling technologies in tandem cold rolling mill
 - Attended Ichimura Industrial Award Ceremony for Super-CR
 - May**
 - Festivals in Fukuyama and Keihin districts
 - Cold-rolled column with reduced fireproof coating approved by the Minister of Land, Infrastructure, Transport and Tourism
 - Developed YP460 N/mm² class heavy thick plate with excellent brittle crack arrest, the first such plate used for LNG ships
 - June**
 - Started renovating ironworks core system
 - Agree to Mexican joint venture for automotive steel sheet with Nucor Corp. in U.S.
 - Wall-panel vibration damper for buildings certified by Building Center of Japan
 - National Commendation for Invention Award received for 590–980 MPa GA steel sheet with superior press formability
 - July**
 - JFE East and West Japan works' baseball teams played in the 87th National Intercity Non-pro Baseball Championship Series
 - Won contract to supply steel materials to Trans Adriatic Pipeline (TAP) project in Europe
 - Developed buckling-resistant J-ROD® Brace
 - August**
 - Signed cross-licensing contract with Thyssenkrupp Steel Europe AG (tkSE) in Germany
 - Launched first system to identify fraudulent inspection certificates in Japan
 - September**
 - Startup ceremony for Gerda's plate mill in Brazil, to which JFE provided technical support
 - Launch ceremony for JFE Steel Galvanizing Indonesia
 - October**
 - Announced merge of JFE Welded Pipe Manufacturing and Kawasaki Kokan Festival in Chiba District
 - November**
 - JFE West Japan Works' baseball team played in 42nd National Championship
 - Began operating upgraded Battery A of No. 6 Coke Oven in Chiba District
 - Festivals in Kurashiki District and at Chita Works
 - Announced transfer of Sendai Works from JFE Bars & Shapes to JFE Steel
 - Developed technology for 1,470 MPa-grade cold-rolled –high-strength steel sheet
 - December**
 - Marine Stone™ received Nikkei Global Environmental Technology Award
 - Began operating One JFE® product delivery system
 - New Machinery Promotion Award received for non-contact threading control device for surface-treated steel sheet
- ### 2017
- January**
 - Developed heavy, thick crack-arrest steel plate for mega container carriers
 - Developed design and welding technologies for mega container carriers
 - February**
 - Established joint-venture company to sell processed construction materials in Vietnam
 - March**
 - Startup ceremony for No. 5 Blast Furnace in Kurashiki District
 - Reduced thickness of fireproof coating for cold-rolled column calcium silicate plate
 - Established joint-venture company for iron powder business with China Baowu Steel Group in China
 - Announced sintering machine upgrades in Fukuyama District
 - Opened daycare center on Chiba District premises
 - Acquired stake in SPINDO in Indonesia
 - Began operating No. 2 Coke Oven in Kurashiki District