Stable supply of hydrogen is essential for our future hydrogen economy. How do we secure large quantities of hydrogen? In answer to this question, Kawasaki is promoting the idea of transporting hydrogen in liquid form. A large amount of hydrogen produced from untapped resources overseas is liquefied by being cooled to -253°C. This reduces the volume to about 1/800 of hydrogen in a gaseous state, making it possible to transport it to Japan efficiently. Thus, Kawasaki is currently developing the world’s first liquefied hydrogen carrier, building on the know-how and technologies it acquired through the construction of Japan’s first liquefied natural gas (LNG) carrier. Kawasaki is working to develop the technological foundation of a hydrogen energy supply chain—production, transportation, storage, and use. We believe that by handling hydrogen in a manner that is safe, stable, and affordable, we will be able to achieve an abundant life. The road to that future is what we call the Kawasaki Hydrogen Road.
Waste-to-Energy Power Generation:
Cutting-edge Technology Drives the Minatojima Clean Center (Kobe City’s 11th Clean Center, Operated by Kobe City’s Environment Bureau)

Waste incineration facilities no longer exist simply to burn waste; now they serve as energy stations, turning waste products into sources of renewable energy. Such an evolution has been propelled by various innovations, including the Kawasaki Advanced Stoker System, which achieves efficient incineration and power generation, as well as a reduced environmental burden.

Delivering to the public as many benefits of energy stations as possible

When the Minatojima Clean Center in Kobe City became visible in its entirety, everybody thought that it was a plant producing electronics parts or precision machinery. The design of the white building’s façade is a lattice pattern created by the outer walls and inner skeletal structures, and looks like a posh laptop in landscape orientation — a design suitably named “Techno-display.” Greenery surrounds the building and there are two parks adjacent to it. Realization that it is a waste incineration plant only occurs when waste collection vehicles are seen entering and leaving.

The Center, located on the southeast side of Kobe’s man-made island called Port Island, began full operations on April 1, 2017. For this project, Kawasaki was awarded both a contract for building the waste treatment plant and a 20-year maintenance contract, which went into effect as soon as operations began. The Center is comprised of three 200-ton furnaces (treating a total of 600 tons of waste per day); a facility capable of crushing 20 tons of wood waste in five hours; a recycling station where 40 tons of collected glass containers, cans, and PET bottles can be reloaded onto other transport vehicles in five hours’ time; and other related facilities. Heat generated from burning waste is used to produce steam that rotates turbines, generating up to 15,000 kW of electricity. The Center’s power generation efficiency stands at 20.8%, which is in the industry’s top-tier in Japan for waste-to-energy power plants, and is significantly higher than the national average of 12.8%. The Center itself consumes around 1,000 kWh, so the excess power generated is sold to energy companies. The amount of this excess electricity is sufficient to power 150 average homes. However, the Center is also equipped with a gas turbine power generation facility to be used in the event of disaster.

Kawasaki’s pursuit of openness. The intr

1.5 billion yen less than other waste-to-energy power stations, and it significantly higher than the national average of 12.8%. The Center itself consumes around 1,000 kWh, so the excess power generated is sold to energy companies. The amount of this excess electricity is sufficient to power 150 average homes. However, the Center is also equipped with a gas turbine power generation facility to be used in the event of disaster.

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Kawasaki's project manager, Akihisa Hirashiki, comments, "Kawasaki built the Minatojima Clean Center based on three principles. First, the facility shall contribute to local communities and be open to the public. Secondly, it shall be eco-friendly, safe, and reliable. And thirdly, it shall achieve high economic efficiency and the capacity to treat waste in a stable and continuous manner.

The Techno-display and adjacent parks were planned to make it a community-oriented, 'open' facility. Its structural design, allowing highly educational social fields, also exemplifies Kawasaki’s pursuit of openness.

The introduction of cutting-edge furnaces and an exhaust gas treatment system should also lead to a sense among local residents that the plant is secure and reliable. Reinforcement of buildings structures, measures to extend structural longevity, highly efficient power generation, and auto-controlled incineration are all contributing to good economic efficiency. Maintenance costs over the next 20 years are estimated at 1.5 billion yen less than other waste-to-energy plants of a similar size.

"Stability" is the word that optimizes our approach: burning waste steadily, producing heat and steam steadily, and generating power steadily. On top of that, the Center’s environmental footprint is small. Many benefits will be provided to the public," says Hirashiki. Supporting sophisticated waste-to-energy power generation is the Kawasaki Advanced Stoker System — a true embodiment of Kawasaki's comprehensive technological capabilities.

Achieving complete combustion with the minimal amount of air

The Kawasaki Advanced Stoker System was developed based on four foundational concepts: 1. Achieve complete combustion with a small amount of air (low air ratio to achieve complete combustion), 2. Improve heat recovery rate, 3. Achieve cleaner incineration ash and exhaust gas, and 4. Perform our operations with stability.

Let's look at the waste incineration process. Waste accumulated in the pit is fed into the feeding area and enters into a stoker type, parallel-flow furnace. After drying, incinerating, and after-burning processes, the waste is turned into ash in three hours. Concurrently, a boiler turns the thermal energy resulting from waste incineration into high-temperature, high-pressure steam, which rotates a power-generating turbine. Exhaust gas is purified in a bag.filter and by low-temperature denitrification catalysis equipment.

The stoker type, parallel-flow furnace is the core of this system. A stoker type incinerator, which is the most popular type today, takes its name from the "staker" — a mechanical system which feeds coal into the furnace of a steam boiler. In a waste-to-energy plant, waste is constantly fed into the furnace. Most of the stoker-type incinerators burn waste in their central area, and the heat and exhaust gas are led upward. A parallel flow furnace however, operates differently and is equipped with a step-grate dolly furnace in which a partition is installed in the ceiling parallel to the movement of the waste, forcing the flue gas to invert and to mix turbulently with air. Also, part of the exhaust gas passed through the bag filter is returned to the furnace, to reduce the volume of secondary air required and achieve low air, high-temperature combustion.

Commenting on the incinerator’s structure, Atsushi Hashimoto, who is in charge of the development and design of this type of incinerator, says, “It was designed to address the challenge of burning waste steadily and completely, with the smallest amount of air. It is easy to burn waste by increasing the volume of injected air, but that results in increased exhaust gas and energy loss.”

Hashimoto adds, “Because a parallel flow incinerator is designed in such a way that flue gas flows parallel to the flow of the waste, it achieves complete combustion of gas which previously remained unburnt in the ash. If forcibly mixing air and exhaust gas in the area where the flue gas is inverted toward the secondary combustion, the temperature is kept high, completely burning the unburned gas. As a result, the generation of dioxin and the emission of carbon monoxide are both reduced, so smaller exhaust gas treatment equipment can be utilized.”

Another innovation used for the incinerator is a method for minimizing combustion fluctuation. Stoker-type incinerator technology was first developed in Europe and later introduced to Japan, but waste in Japan had a much higher level of moisture which made it harder to burn. Japanese engineers therefore strove to upgrade the technology to achieve stable combustion of most waste. The parallel flow furnace is one of the resulting inventions, but Kawasaki has gone further developing the Smart-ACC (Automatic Combustion Control), an automatic combustion control system whereby combustion and steam generation are controlled simultaneously by artificial intelligence.

This system has been introduced in the Minatojima Clean Center. The Smart-ACC automatically judges the state of combustion and the level of steam generation in a comprehensive manner, and determines how much waste should be fed into the furnace under what conditions, as well as how much air and exhaust gas are needed, and automatically controls the incineration operation itself. Hashimoto comments, “The Smart-ACC is the epitome of waste incineration expertise.”
An eco-friendly system that incinerates safely and completely

Stable incineration at high temperatures provides a variety of benefits. The heat recovery rate is improved and therefore power generation efficiency is increased. A high pressure, high temperature boiler (4 MPa, 400°C) is used to rotate the turbine. “Quality steam can be obtained from stable incineration, as the steam being generated is also stabilized. If ‘quality steam’ is generated consistently, the electricity generated by the turbine stabilizes, too. When selling excess power to energy companies, the capacity to stably supply ‘quality electricity’ is a big plus, because that is what power companies seek the most from suppliers. Prolonged life of structural components also enhances the benefits of a stably-operating incinerator. For example, boiler pipes, which experience high temperatures, require special features. Hashimoto explains, “To prevent corrosion, Kawasaki performs a unique ‘weld overlay’ for the pipes of the superheater, utilizing a metal with extremely high corrosion resistance.” Normally, such pipes must be replaced every 10 years, but these weld-overlay pipes last for more than 30 years. Since the average life of an incineration plant is 30 years, these pipes rarely need to be replaced. The reason why maintenance costs at the Center are 1.5 billion yen lower than at similar plants is because the Kawasaki Advanced Stoker System is designed to be a complete ecosystem.

Comprehensive technological expertise that converts incineration plants into profit centers

Kobe City began operating its first waste incineration plant in 1963, one of the earliest in Japan. The Minatojima Clean Center is the city’s 11th such construction project, and, as this history suggests, the city is well-experienced in waste incineration, and has sufficient knowledge for evaluating relevant technologies.

Kazuhiko Ichie, who is a manager of Kawasaki’s sales in this region, comments, “Waste incineration plants are beginning to play a pivotal role in the formation of community energy networks; and today, large municipalities are trying to be suppliers of stable sources of electricity by running multiple incineration facilities. To accommodate such a trend, plant business operators must have the acumen for making proposals that address highly specific challenges.”

Kawasaki delivered its first waste incineration plant in 1964, to Kitahiroshima in Aichi Prefecture, Japan. However, it was not until the company received an order in 1968 from the city of Kyoto to build a waste-to-energy plant with a 4,000 kW output (the Toubu Clean Center), that it began intentionally pursuing the concept of incineration plant systems serving as energy producers. Its endeavors culminated in the 1996 completion of the Hanyu Incineration Plant in Nagoya City, with an incineration capacity of 1,500 tons of waste per day and power generation of 27,000 kW—virtually the largest facilities of the kind in Japan. Ichie says, “Thanks to its extensive experience in building various plants, Kawasaki is able to present benefits of waste-to-energy plants, including improved power generation and a smaller environmental footprint, in a comprehensive manner with the recycling and reusing of resources becoming so popular, the overall volume of waste has decreased; and this is precisely why municipalities are just advocates of converting those plants into profit centers, rather than cost centers. Addressing these needs is extremely meaningful in terms of societal benefits.”

Expectations for waste incineration facilities to act as energy centers will only intensify in the future, and Kawasaki must be poised to respond to those demands with the comprehensive technological expertise which culminated in its Advanced Stoker System.

Addressing a Global Agenda using Japan’s Advanced Technologies

Since the beginning of the 1960s, when rapid economic growth was beginning to take place in Japan, waste incineration facilities have grown in number and have needed replacing about every 10 years. The combined incineration capacity of the facilities constructed in Japan on an annual basis is about 4,000 tons, and most of those are for renewal projects for facilities built in the early 1990s. Environmental issues promoted the “waste-to-energy” concept, which has become the standard today. For new construction of waste incinerators, technological solutions for achieving both stable incineration and high economic efficiency are proving effective in reducing the financial burden on municipalities.

Since its first delivery in 1964, Kawasaki has constructed 178 waste incineration plants in Japan and overseas, of which 79 are currently in operation in Japan. Since the 1960s, the company has been striving to establish incineration facilities as energy stations, resulting in the development of parallel-flow furnaces, structural components with longer lives, and other proprietary technologies for which Kawasaki has won high acclaim. Kawasaki’s track record, particularly for the construction of large furnaces and large-scale incineration facilities with large power generation systems, is overwhelmingly higher than that of its competitors. Because they are large-scale, a good balance of safety, stability, and economic efficiency was immensely important, and Kawasaki tackled the challenge with its comprehensive technological expertise.

It is said that waste “treatment” usually takes the form of landfill in the beginning, and it is not until the gross domestic product (GDP) exceeds 3,000 US dollars per capita that countries can afford to pay for waste treatment, and start building waste incineration plants. China, Malaysia, and Singapore are currently at this stage, soon to be followed by Thailand and Indonesia. Kawasaki formed a joint venture with a Chinese company, and has already received orders for 10 stoker type waste-to-energy facilities. In China, the ash remaining after gasification of waste is used as cement material—a system called the CDQH Kawasaki Kiln (CKK) System. We are committed to proactively addressing global environmental challenges, by applying the superior technology of waste incineration in Japan. I believe that this is an extremely meaningful business that leads to resolving issues which are considered to be a global agenda.
Kawasaki Thermal Engineering Co., Ltd. (KTE) handles the manufacturing and sales of package boilers for the Kawasaki Group. Since developing the first Japanese-made once-through boiler, the company has produced various world-firsts and industry-firsts, leading technological innovation as the top runner in the industry.

KTE, which was established in 1978, has its origins in three organizations: the General Purpose Boiler Division of Kawasaki, Yokoyama Kogyo (which merged with Kawasaki in 1966), and Kisha Seizo Co., Ltd. (which merged with Kawasaki in 1972). Yokoyama Kogyo introduced the technology of the Benson boiler, a forced once-through boiler developed in Germany, and Kisha Seizo produced Japan’s first steam generator for heating Japanese National Railways trains in 1951. As a result of the merger, KTE strengthened its position as a specialist in boiler production, equipped with all functions, from development to design, manufacturing, sales, and service.

Since the new company was formed through a merger of three top companies, its development capabilities surpassed those of the competition. In 1996, KTE developed a finned tube with a large heat transfer area by layering a large number of fine enlarged heat transfer surfaces onto a water tube on the boiler body. The KF type boiler realized about 2.6 times the steam output of the initial SG boiler with the same heat transfer area.

In 2000, the company developed the IF (Ifrit) type, which adopted automatic control of boiler combustion capacity (combustion PID) and automatic control of feed water volume (feed water PID). This was the world’s first large (6,000 kg/hour steam output) multi-tube once-through boiler, which was also highly durable. Based on this durability performance, KTE started offering 15-year product warranties from the time the IF-F type (Ifrit Fuerza) launched in 2015.

Then in 2016, KTE released its state-of-the-art WF type small once-through boiler that brought together the technology of once-through boilers and large boilers. Compared to the KF type, power consumption has been reduced by 44%, weight by 30%, and footprint by 10%.

This type adopts automatic feed water control while improving the performance of the automatic combustion control adopted in the SG and SH types. Furthermore, by improving the heat transfer performance while maintaining the structure of the SH/KF type, KTE succeeded in developing the world’s first high-performance, large multi-tube once-through boiler. Despite having the same function and performance as a larger boiler, it is also a user-friendly product that does not necessitate a boiler engineer’s license. (The photo shows the 2015 IF-F type.)
Hydraulic equipment is popularly used for driving various industrial machines, as it provides intense power using a small driving force, thus delivering “high output density.” Previously, however, precise control on a par with electrically-driven equipment was impossible. To resolve this drawback and achieve a system that offers both the ease of control of electrically-powered equipment and the power of hydraulic products, Kawasaki developed an electro-hydraulic hybrid system, the KAWASAKI ECO SERVO.

Unlike a conventional hydraulic pump, which is driven by a conventional motor and discharges a fixed amount of oil, ECO SERVO controls the variable-speed motor for the hydraulic pump in a precise manner and optimizes the volume of oil discharged according to the type of operation the industrial machine is performing.

By controlling the motor and employing a simplified hydraulic circuit, ECO SERVO achieves a 60 to 80% energy savings. A reduction in the number of control valves on the circuit also makes the configuration much simpler, resulting in reduced heating value and a more compact oil tank. The resulting ease of maintenance is an additional benefit of the system. In some cases, needed installation space was reduced by two thirds, and the volume of hydraulic oil used to one-twentieth that of conventional systems.

ECO SERVO made its debut in 1999. Because the concept that motors could be controlled was totally new at that time, ECO SERVO was a revolutionary invention. Since then, the system has evolved and Kawasaki now offers a wide range of models, including a high-pressure, large-displacement type that achieves a continuous rated pressure of 32 MPa and a maximum pump displacement of 500 cm³.

ECO SERVO is being utilized with a diverse range of industrial equipment, such as large press machines and injection molding machines. Not only that, but it is also being used in applications closer to our everyday lives, such as adjustment systems for variable pitch blades of ventilators installed in highway tunnels and for laundry dewatering presses.

Versatile enough that it is applicable even to existing systems

One of the most prominent features of ECO SERVO is its versatility, allowing customers to configure systems in a way that best suits their operational requirements. For example, an open-circuit configuration could be created, whereby the oil is deposited in the reservoir tank, once-used, or a closed-circuit configuration, whereby the oil is returned to the hydraulic pump. Also, the system could employ a servomotor, which offers a high degree of controllability, or a robust and effective inverter drive. Kawasaki is ready to create tailor-made proposals that achieve optimal performance, by combining the best hydraulic circuit, simplified control technology, and compact unit construction.

Combining the best of hydraulic and electrical systems

ECO SERVO is a hybrid system that renders high-density power along with the precise controllability of an electrically-driven system. In a conventional hydraulic system, the motor is constantly running and consuming power even when the machine is not in operation. ECO SERVO, on the other hand, controls the motor speed and drives the pumps only when they are needed, achieving a dramatic reduction in power consumption, which in some cases goes as high as 80%.

A Tiny System with the Power to Drive Industrial Machines

Kyosuke Ogawa

In addition to combining a hydraulic pump with electrical equipment, ECO SERVO is highly reactive, and significantly quieter operation. The control device, with the help of sensors, offers highly precise, energy-efficient, high-output density, and significantly quieter operation.

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Power consumption reduced

ECO SERVO is equipped with a suction valve with superior self-priming capability, designed to compensate for the shortage of the flow. This function is unique to Kawasaki’s system.

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Twenty years after launching the community “Field of Mugi,” a site to support women who work while raising their children, how does Kazuyo Katsuma, who has served as a role model for working mothers in Japan while raising three children of her own, view the modern work style?

Diversity of human resources increases productivity.

Katsuma passed the certified public accountant examination when she was 19 and gave birth to her eldest daughter at the age of 21. When Katsuma was working at a foreign-affiliated company, she set up “Field of Mugi” at the age of 27 years old.

“Working mothers were rare and I had no one to ask for advice at the time, so I created Field of Mugi as a place where women experiencing the same troubles could exchange information. Put in modern terms, it was one of the first SNS.”

“Field of Mugi” attracted attention, and Katsuma was selected as one of the Wall Street Journal’s “50 Women to Watch.” She was also the youngest winner of the Grand Prize of the Japan’s “Avon Awards to Women.”

“It has been 20 years. Although progress is slow compared to overseas, the number of women who want to be involved in child-raising and for their partners to work, as well as the number of managers sympathetic to such wishes is increasing, and the environment surrounding Japanese working mothers is steadily improving. For example, there is empirical research demonstrating that workplaces with women in managerial positions have high profitability, and the reason for this diversity. These days, the speed at which the environment is changing is remarkable, which is difficult to keep pace with by taking a uniform approach to work.

Combining the diverse abilities of women, younger people, foreigners, sexual minorities, disabled people, and the like makes companies more resilient when faced with environmental changes and increases productivity. It is important for Japanese management to acknowledge what benefits that diversity can bring about.”

But diversity that requires women to follow the same working style as men is meaningless.

“Working mothers desperately want to go home early, so they think seriously about establishing a work style for themselves that requires no overtime. When a zero-overtime work style led by such women is proposed, the corporate climate changes. The company’s focus shifts from reducing working hours to eliminating overtime. In a recent example, a systems company garnered attention by paying bonuses according to the amount of overtime reduced.”

A customer-centered evaluation system.

To reduce overtime, you have to reduce workload. It is necessary to let go of low profit work and increase the amount of high profit work. That is, to improve productivity. Although this is very self-evident, there are still only a few companies that are working on this on a company-wide basis. The evaluation system is largely responsible for this.

“At JP Morgan we were assessed by productivity, not the number of hours we worked. The key here is that productivity is measured by customer evaluation and sales, not by one’s reputation within the company. That’s why JP Morgan asks clients to give feedback down to the level of the individual name of the person in charge, and gives feedback on the work of administrative departments, such as the general affairs department, every time. In other words, you are evaluated by the person you provided the service to and you evaluate the person who received the service. A lot of time is spent on these personnel evaluations.”

So how can we change the old evaluation system currently in place? Companies that have changed the evaluation system top-down are producing results. If you just encourage change and don’t change the system, it will not go well.

Even if the system cannot be changed immediately, Katsuma says that working with a sense of ownership will lead to career advancement, such as by recruiting a friend or actively promoting one’s strengths.

“It is natural to fail. A professional is a person who has amassed many failures. Since we make so many mistakes ourselves, we should share information and try to gather wisdom. Last year, the Act on Promotion of Women’s Participation and Advancement in the Workplace was passed. I believe the Japanese people’s way of working will have changed significantly in five years’ time.”

Kazuyo Katsuma

Born in Tokyo in 1968. Graduated from Keio University Faculty of Business and Commerce, and acquired a Finance MBA from Waseda University. Earned the qualification of junior accountant at the age of 19, the youngest at that time. Went independent after working at Arthur Andersen, McKinsey, and JP Morgan. Currently active as director of Audit & Analysis Co, Member of the Council for Gender Equality of the Cabinet Office, member of the Council for Social Infrastructure of the Ministry of Land Infrastructure and Transport; and a Chuo University Business School Visiting Professor. She speaks on a wide range of topics, including the declining birthrate issue, young people’s employment issues, work-life balance, and improving individual productivity by utilizing IT. She receives a high level of support, especially from among young people.
Kawasaki established its new Singapore Kawasaki Robot Engineering Center (SKRE) in Punggol Port, Singapore, on June 15. This facility, which is a first-of-its-kind for Kawasaki, will focus on driving the applications development and training for its latest technology, the dual-arm collaborative robot, "duAro," which is capable of mimicking human motions with its two independent arms, has wide-ranging applications across areas such as plastic molding, food manufacturing, machine fabrication, and electronics assembly. In addition to its practical applications, the modular, ease of deployment and usage of the duAro makes it an ideal solution for small and medium enterprises (SMEs). SKRE will provide end users with an alternative robotics solution to what is available in the market today. The use of dual-arm robots reduces the need for jigs and fixtures compared to single-arm robot systems, and there are few other collaborative dual-arm robots available commercially today. A key activity of this new Kawasaki robot facility is to provide training on duAro applications in order to support and scale up the capabilities of Singapore's system integrators and end users.

Kawasaki's Aerospace Division completes cargo door production line in the US and wins a Boeing's 2016 Supplier of the Year Awards

In May, Kawasaki completed a production line for cargo doors used in Boeing's state of the art commercial airplane, the 777X, at Kawasaki Motors Manufacturing Corp., U.S.A. (KMM), which is Kawasaki's local American subsidiary in Lincoln, Nebraska. Kawasaki held a ceremony on May 18, marking the opening of these new facilities, after which the production began, with full-scale production activities scheduled to commence in the fall of this year. Construction of the production line facilities began in December 2015, in a 2,800 m² (30,139 sq. ft.) area of an existing Lincoln Factory building, and the project represents Kawasaki's establishment of an aircraft parts production line in the United States. The new facilities feature proprietary painting robots developed by Kawasaki that provide intricate, precise painting, as well as auto riveters with an expanded operating range and other state-of-the-art equipment to achieve greater automation for high-quality, high-efficiency production operations. Furthermore, Kawasaki is actively incorporating its unique KPS* production system, developed through mass production activities over the years, into its aircraft parts production. In the future, the company also plans to integrate information and communication technology (ICT), Internet of Things (IoT) technologies, and other smart factory technologies and infrastructure like those being utilized in the newly completed 777X Assembly Plant at Nagoya Works 1, which has undergone production of forward and center fuselage sections. Steady growth in aircraft demand is expected to continue throughout the global commercial aircraft market. With these new production facilities for Boeing 777X cargo doors in place, Kawasaki has designated the Lincoln Factory as its main aircraft parts manufacturing base in the U.S.A. and will actively pursue the expansion of its commercial aircraft business as well as the continuous growth and development of KMM.

Kawasaki Group company NIPPICorporation received a Boeing's 2016 Supplier of the Year Awards (the Collaboration Award) in April. The award received by Nippic from the company this time follows its receipt of Boeing's President's Award for Excellence in 1998.

The 2016 Supplier of the Year Awards recognized 13 companies, selected from more than 13,000 eligible Boeing suppliers in 48 countries, for their outstanding achievements. Award winners displayed exceptional performance, meeting high-level customer satisfaction standards. NIPPIC received a 2016 Supplier of the Year Award for a testament to the company's high quality standards, competitive pricing, and strict adherence to delivery deadlines, and also represents Boeing's high valuation of NIPPIC's cooperative attitude toward their partnership – what is called "working together" represented by its constructive proposals to Boeing.

Kawasaki's production system used in the newly completed 777X Assembly Plant at Nagoya Works 1, which has undertaken production facilities for Boeing 777X cargo doors in place, Kawasaki has designated the Lincoln Factory as its main aircraft parts manufacturing base in the U.S.A. and will actively pursue the expansion of its commercial aircraft business as well as the continuous growth and development of KMM. Kawasaki Group company NIPPICorporation received a Boeing's 2016 Supplier of the Year Awards (the Collaboration Award) in April. The award received by Nippic from the company this time follows its receipt of Boeing's President's Award for Excellence in 1998.

A Stable supply of power is a pressing need in Uzbekistan against the backdrop of the country's growing economy in the Fer gana region, power demand is high due to the population concentration, but the power supply is dependent on a distribution system that transmits power from a power plant to a distant area. A more decentralized form of power generation is needed in the region.

New Energy and Industrial Technology Development Organization (NEDO), Maru beni Utility Services, Ltd., and Kawasaki have launched a demonstration project on gas turbine cogeneration systems in Fer gana, Uzbekistan.

After the construction work is completed, the installation and demonstration of equipment will proceed to introduce gas turbine cogeneration systems at two demon stration sites in Fergana up to the end of FY2020. The aim of the project is to realizes energy savings of 38% compared to conventional systems, and also ensure a stable supply of power and heat.

The values indicated above were calculated by assuming the fuel consumption at the Fergana RK-3 power plant.
Stable supply of hydrogen is essential for our future hydrogen economy. How do we secure large quantities of hydrogen?

In answer to this question, Kawasaki is promoting the idea of transporting hydrogen in liquid form. A large amount of hydrogen produced from untapped resources overseas is liquefied by being cooled to -253°C. This reduces the volume to about 1/800 of hydrogen in a gaseous state, making it possible to transport it to Japan efficiently.

Thus, Kawasaki is currently developing the world’s first liquefied hydrogen carrier, building on the know-how and technologies it acquired through the construction of Japan’s first liquefied natural gas (LNG) carrier.

Kawasaki is working to develop the technological foundation of a hydrogen energy supply chain—production, transportation, storage, and use. We believe that by handling hydrogen in a manner that is safe, stable, and affordable, we will be able to achieve an abundant life. The road to that future is what we call the Kawasaki Hydrogen Road.