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azbil FIELD **Daesung Industrial Gases Co., Ltd.**

azbil MIND **Commencement of Remote Maintenance Service in Asia: Offering Japanese-quality Services Backed by Advanced Diagnostic Technology**

Special Feature

## From Japan to the World

Japan-originated food culture that also provides visual delight

# World of Plastic Food Samples

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# World of Plastic Food Samples

*Sashimi, Chinese cuisine, spaghetti, sweets... All of these in the photos look so good, but in reality they are not edible. Many restaurants in Japan display plastic food samples at the entrances. Production of plastic food samples started in Japan and developed uniquely within the nation. Today, plastic food samples are popular souvenir items purchased by overseas tourists to Japan. The following introduces the world of plastic food samples Japan is proud to present to the world.*

## Visually presenting ingredients, quantities, and cooking methods

Plastic food samples are replicas of food that can be displayed semi-permanently in a showcase, etc. They are made to provide the information of food served in restaurants, such as ingredients, quantities, and cooking methods.

Created in the 1910s, plastic food samples are said to have gained popularity as the number of large department stores increased, and they eventually became part of the Japanese food culture. In those years, restaurants in department stores were favored by people looking for nice places to eat out and attracted crowds of people. To smoothly handle many customers, restaurants in department stores implemented the meal ticket system. It eliminated the need for taking orders directly from the customers at the tables, thus allowing efficient handling of a congestion of customers. Plastic food samples contributed to the efficient implementation of the meal ticket system. Customers waiting near the meal ticket counter looked at plastic food samples in the showcase and decided what to order until their tables were ready. Unlike text-filled menus, plastic food samples allowed customers to make selections intuitively. Plastic food samples helped customers understand at a glance foreign cuisine that they had never eaten before, so they would develop a desire to try them. By looking at food samples and thinking real tastes, customers could find the dish they would like to eat from many various options. This trend spread from restaurants in department stores.

Plastic food samples are displayed neatly in front of many restaurants in Japan.

Many plastic food samples are made of vinyl resins today. First, actual-size molds are made with silicon. Then, vinyl resin is poured into the molds and heated in an oven for molding. Using a brush or spray gun, paints are applied to the molded vinyl resin parts for coloring. Each piece is glued to the plate. I visited the plant of IWASAKI CO., LTD., a member of the Iwasaki Group, a leading manufacturer of plastic food samples. In charge of the eastern Japan market, this plant produces the greater part of food sample products on a made-to-order basis, and products are delivered to customers in two to three weeks. Mr. Takashi Nakai in charge of public relations describes the key points in making food samples.

IWASAKI CO., LTD.
charge of public relations
**Takashi Nakai**

"Sales representatives take pictures of actual food cooked by restaurants, then draw illustrations and take notes. Each cooked food is placed in a storage container and brought to the plant. For example, hamburger steaks vary in size and shape, as well as the size of the center dimple, from restaurant to restaurant. So we make molds from actual food to ensure accurate reproduction."

Recreating fine details accurately does not necessarily result in the faithful reproduction of food. The main purpose of food samples is to provide the information of ingredients and how they are cooked. So, the maker pays close attention to make sure plastic food samples show ingredients clearly, more so than actual food does.

"Actual *tempuras* are about the same in color, but plastic food samples must show what's inside, such as eggplant and carrot."

Furthermore, some know-how is required for coloring and arrangement of food on the plate. Plastic food samples must provide the information of food immediately and accurately and also look delicious at the same time.

"For instance, if we accurately reproduced burn marks on an actual pizza when producing a plastic food sample, the resulting sample would look like an overcooked pizza. Whether the replica conveys the pleasant aroma of pizza without looking burnt depends on the skill of the craftsman who makes it."

The most difficult food to make plastic samples of is *sashimi* (sliced raw fish) and sliced meat. It is difficult to reproduce the delicate translucency, freshness, and soft but resilient texture of such types of food.

## Diffusion of plastic food samples across Asia

One piece of made-to-order plastic food sample costs roughly several thousand yen or more. A certain amount of investment is required to fill a showcase with ample samples of dishes available on the menu, but plastic food samples can be rented instead of purchased. The monthly rental fee is reasonable. Rental companies also make periodic visits for maintenance. Use of a rental service also enables prompt response to a menu change or campaign. In fact, the rental system helped the widespread use of plastic food samples.

Plastic food samples improve the turnover rates of restaurants, and effectively provide the information and price of each dish. In addition to these, another great benefit can be expected from displaying plastic food samples, according to Mr. Nakai.

"First, plastic food samples attract the attention of people and draw them to the restaurant. Then, food samples stimulate the appetite of customers, making them want to eat at the restaurant. By highlighting the food samples of dishes recommended by the restaurant, it is possible to increase the orders for those dishes. Furthermore, plastic food samples invoke customers' interest in other dishes, thus increasing the rate of customers returning to the restaurant to eat different dishes. In fact, it is more economical to display samples than to display actual food every day."

Foreign tourists to Japan are growing in number. Some of them say plastic food samples are very convenient because they can see what food is like even if they cannot read the Japanese menu. Miniature food sample accessories such as mobile phone straps are becoming popular souvenir items at sightseeing spots and tourist attractions.

Use of plastic food samples is also spreading across Asia and in other countries. When the Seoul Olympic Games were held in 1988, many restaurants in Korea displayed plastic food samples to promote Korean food to foreign visitors. Now, you can see plastic food samples in front of many restaurants in Korea. In China, more and more restaurants in Shanghai and other large cities also began displaying plastic food samples.

In Europe and America, meticulously produced plastic food samples are evaluated as unique art objects; however, it is said that visual information given by plastic food samples does not stimulate the appetite of European or American people very much. This difference in effect resulting from the variance in culture or customs is a major puzzle surrounding plastic food samples. Nonetheless, globalization of plastic food samples has just begun. In the near future, you may see various plastic food samples in front of restaurants around the world.

Straps, magnets, and other accessories featuring plastic food samples are popular souvenirs of Japan.

## Plastic food sample manufacturing process

**1 Production of mold**
Silicon is poured over actual food. The food is removed after the silicon hardens. (Parts of sweets shown in the photo)
Vinyl resin is poured into the mold.

**2 Molding**
Vinyl resin is heated and hardens in the oven. Pink and white vinyl resins are combined to express the texture of raw meat.

**3 Coloring**
Brushes and spray paints are used to color the sample. The photo shows coloring of a pizza dough sample. Considerable experience is required to add colors for expressing the enticing aroma and texture of pizza.

**4 Arrangement on a plate**
Colored parts are glued and attached to a plate using a hot air blower.

【Apology and revised statement】 The explanatory note for currency unit was missing in the diagram "World's economic population pyramid" on page 3 of 2014 Vol.4. We would like to apologize and revise as follows:The currency unit for this diagram is the international dollars converted at purchasing power parity (as of 2002).

# Daesung Industrial Gases Co., Ltd.


**Daesung Industrial Gases Co., Ltd. is a leading company in industrial gases producing market of South Korea. The company supplies manufacturers and other customers with industrial gases on a 24/7/365 basis. For that reason its choice of the instrumentation and control systems that support its industrial gas production facilities is extremely important. It could be said that the company has grown as much as it has since its founding because it has consistently adopted business partners that provide highly reliable products and services based on Japanese quality.**

## *High ratings for technology and cost lead to long use of Azbil products*

Daesung Industrial Corporation was founded in 1947 as an energy supplier for Korean industries. Daesung,*1 with Daesung Industrial Gases Co., Ltd. (hereinafter DIG) as a leading member, does business not only in the energy market, but also in a wide range of areas such as industrial gases, machinery, construction, and distribution.

Among the various companies in Daesung, DIG is the one that produces and sells industrial gases, including oxygen, nitrogen, and argon. Today, the company does business not only with manufacturers, but also with companies in the medical and food industries. Its capacity for producing industrial gases is now top-ranked in Korea.

"We were latecomers in this business; there were already many foreign competitors in Korea back then, and yet we managed to become number one in production capacity," notes Sun-Wook HAN. "We think this is partly because of our successful efforts in four main business areas: bulk production of liquefied gases exclusively, tonnage sale of liquefied gases distributed by pipeline, specialty gases, and industrial plants, where gas is produced on the customers' premises. But we also believe that we were able to achieve impressive success because of our partners who have worked continuously to support us in various ways, and therefore we feel very thankful for them."

In particular, Azbil Corporation, which has continuously supported DIG's production of industrial gases by providing instrumentation devices, transmitters, and control valves, as well as control and monitoring systems, is one of DIG's most important partners. DIG used Azbil's products in 1979 for the first time, and now almost all of its facilities, a total of 13 factories and more than 40 industrial plants, are using Azbil's products.

"The primary reason for our continuous selection of Azbil's products is that they are really satisfying in terms of technology — high-quality products with good operability — and in terms of competitive price," explains Sun-Woo LEE.

## *Stable plant operation spanning 20–30 years*

Ulsan is one of the largest industrial cities in South Korea, a place where many petrochemical complexes can be seen. The Ulsan Plant, which is owned by DIG, supplies the neighboring petrochemical complexes with industrial gases such as oxygen, nitrogen, and argon, via pipelines and tanker trucks. The plant actually consists of two main plants: the first built in 2008, and the second rather recently in 2012. Both use Harmonas-DEO™, Azbil's monitoring and control system, as a DCS,*2 and are equipped with a wide variety of Azbil-made peripheral equipment, including instrumentation and control valves.

"Azbil provides very reliable products and 24/7 maintenance support services for our plants," says Hee-Chan SEO. "For the air separation process, in particular, good control valves that can endure low temperatures are absolutely necessary. We think that having the high durability needed to meet this kind of requirement is one of the unique strong points of Azbil's products."


Some of the industrial gases produced at the Ulsan Plant are supplied to the petrochemical complexes of DIG's customers via pipelines, and some are liquefied at ultralow temperatures and delivered by tanker trucks.


The SuperAce™ AT9000 Advanced Transmitter for pressure and differential pressure is used in the air separation process of gas production.


HTS top-guided single-seated control valves can endure the low temperatures of the air separation process. Equipment that controls liquefied oxygen at –190°C must have high durability at super-low temperatures. Due to the ultralow temperature liquid, part of the piping is covered with frost.

"In many cases," adds Myung-Shik CHOI, "the equipment and devices in our facilities continue running for 20 to 30 years. When we choose the products we are going to use, we place importance on their robustness. We look to see whether they could work properly for a long time with a minimum of maintenance. The superb durability of Azbil's products has provided our on-site staff with considerable peace of mind."

According to DIG, Azbil has contributed to a great extent to the operation of the Ulsan Plant by providing technical skills and support services in the areas of engineering and maintenance.

"Whenever we urgently need help on-site with any piece of equipment or the control and monitoring system," says Seok-Jin KIM, "Azbil's staff always responds quickly and deals with each issue from the customer's point of view. And when they are on-site, Azbil's personnel make efforts to pass on their high level of technical know-how to our operators, helping them to build their skills, which we are also really thankful for."

In recent years, DIG has been working to upgrade aging plant equipment, some of which has been in active service for over 30 years now. "The main purpose of this upgrade of devices and equipment at our plants is to seek added value such as increased automation and higher reliability," says Mr. SEO. "By introducing the latest equipment, which we obtain from Azbil, we think we will accomplish this purpose."


Harmonas-DEO control and monitoring terminals in the central monitoring room. The system enables a minimum of only three regular operators to monitor both the first and second plants at Ulsan.

## *A partner to assist DIG in overseas business development*

With the industrial gas market in Korea already reaching the saturation point, DIG has been aggressively working over the past 4 or 5 years on expansion of its business into overseas markets where DIG has growth potential.

"As part of our business expansion, we have already started two industrial plants in China," says Mr. LEE. "Also, we have started exporting gas processing plants and facilities to Indonesia in Southeast Asia, Kazakhstan and Uzbekistan in Central Asia, and to nations in the Middle East. We have set a medium-term goal of becoming the number one industrial gas supplier in Asia."

DIG understands it important to build good relationship with partner companies in order to increase its market share overseas, just as it did in Korea, and naturally, increasing expectations have been placed upon Azbil also.

"We expect to make the business relationship with Azbil stronger than ever in the global market," says Mr. HAN. "In the global market, in the midst of intense competition, our requirements for quality, cost, and on-time delivery will be even stricter. Nevertheless, we are sure that Azbil, which has been helping us grow for as long as 35 years, will meet our expectations."

### Daesung Industrial Gases Co., Ltd.

**Location**
12F, D-CUBE, 662 Kyunginro, Guro-gu, Seoul, Korea

**Establishment**
February 1979

**Representatives of the Board**
Hyoung-Tae KIM, Sin-Han KIM


**Sun-Wook HAN**
General Manager
Purchasing Headquarters


**Sun-Woo LEE**
J.Leader
Technical Purchasing Team
Purchasing Headquarters


**Hee-Chan SEO**
General Manager
Production &
Safety Management Dept.


**Seok-Jin KIM**
Manager
Production &
Safety Management Dept.


**Myung-Shik CHOI**
Junior Manager
Engineering Department
Engineering Headquarters

**glossary**

***1▶ Daesung**
Daesung is the name of a group to which Daesung Industrial Gases Co., Ltd. belongs.

***2▶ DCS *(distributed control system)***
Distributed control systems are specially designed to monitor production processes and control production equipment at plants and factories. A DCS distributes various functions to many component devices that are connected over a network, so that the workload is shared and maintenance can be done safely.

azbil MIND vol.17

# Commencement of Remote Maintenance Service in Asia: Offering Japanese-quality Services Backed by Advanced Diagnostic Technology

**Azbil Corporation has started offering its remote maintenance service overseas, making available to overseas customers the same high-quality services provided in Japan by Azbil's Building Systems Company. By extending the service infrastructure and the service functions and expertise developed and accumulated in Japan to other countries, Azbil performs fault diagnosis, energy-saving analysis and other services for buildings installed with Azbil building automation systems remotely from Japan. The technical support staff at Azbil in Japan provides technical assistance and data analysis in collaboration with the local consulting sales representatives and service engineers of overseas subsidiaries to deliver "Japanese-quality" services to overseas customers. Azbil has already launched the remote maintenance service in Thailand, Vietnam, and Singapore, and plans to expand it to other Southeast Asian countries.**

## *Connecting customers' buildings to Azbil's service platform to provide advanced diagnostic services*

Azbil's Building Automation (BA) business, a core business, delivers advanced solutions through an integrated structure encompassing instrumentation design, sales, engineering, and services of BA systems as well as energy-saving solutions and facility management. A BA system comprehensively controls, monitors, and manages various facilities and equipment in a building, such as electrical systems, HVAC equipment, sanitary facilities, and fire alarms, and security systems. Azbil offers various services for BA systems installed at customers' sites, one of which is remote maintenance. Through this service, we inspect customers' BA systems and their control operations, respond to equipment problems, and support their energy management needs from a remote location.

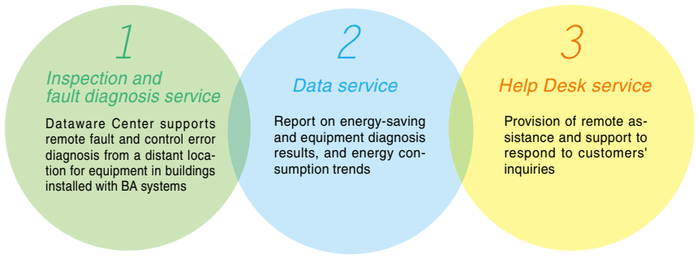
Azbil established its Dataware Center in 2001. By connecting to the BA systems of maintenance contract customers via telecommunication infrastructures, the center supports the diagnosis of BA systems failures and abnormal control operations as well as emergency response actions in the event of equipment failure. Azbil has been utilizing the Dataware Center to upgrade its maintenance services to the remote maintenance service.

The Dataware Center accumulates various data collected by customers' BA systems, such as room environment data, equipment operation data, and alarm and error histories, and uses it for the diagnosis and processing of equipment failures, control operations, and energy conservation. Our sales representatives and service engineers also utilize the data to provide the most suitable services for customers' buildings.

When our service engineers receive inquiries from customers seeking advice or regarding trouble that has occurred in their BA systems, they access the system at the Dataware Center to check the conditions of the BA systems of customers' buildings in order to respond promptly and accurately to their problems.

The remote maintenance service is provided to more than 1,900 buildings in Japan as of December 2014, and it has been highly evaluated by users since its launch.

**Remote Maintenance Service Menu**




The azbil Group also proposes facility renovations and energy conservation measures suitable for each individual building by utilizing the operation data specific to each building obtained through these services.

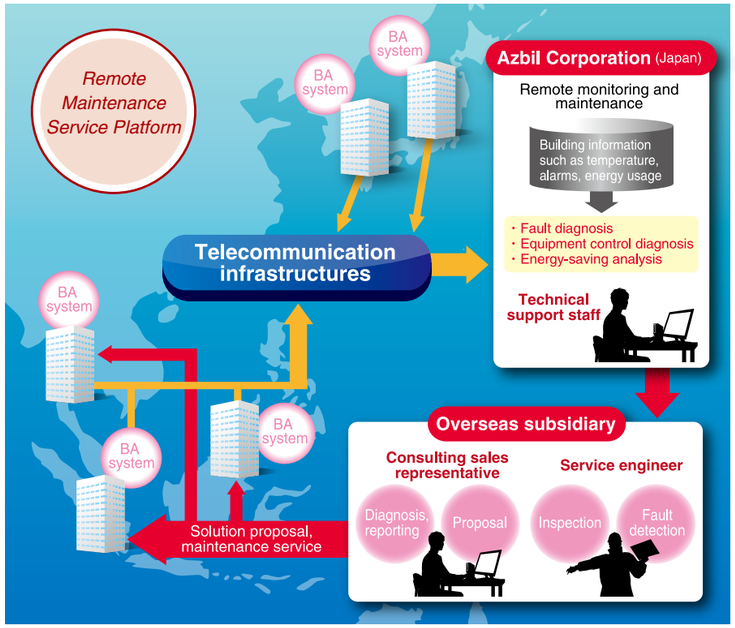
## *Enhancing after-sales services by connecting to customers' buildings via network infrastructure*

Azbil has designated three growth fields in its medium-term plan formulated in 2013. One of them is its ENEOPT*1 energy management solutions. Azbil is expanding its acclaimed building service and maintenance business offered in Japan to other countries with the aim of supporting customers' business growth while contributing to global environmental preservation. As more and more Azbil BA systems are being installed in buildings mainly in Southeast Asia and East Asia, Azbil began providing the remote maintenance service offered in Japan to overseas buildings in April 2014. The service is already in operation in Singapore, Thailand, and Vietnam.

In launching this service overseas, we expanded our service structure beyond Japan and built a secure service infrastructure to connect the BA systems of overseas customers to our center in Japan. The new infrastructure allows us to collect and accumulate various data of overseas buildings installed with BA systems just like in Japan, and to offer overseas customers the same diagnostic services provided in Japan.

By sharing information and collaborating with our experienced and knowledgeable technical support staff in Japan, the consulting sales representatives and service engineers of our overseas subsidiaries can provide Japanese-quality services and solutions to customers in their countries.

In overseas regions where our service structure has yet to be fully established, our service engineers may not be able to arrive at customers' sites promptly. Customers in those areas can be assured of reliable operation of their BA systems by using the remote maintenance service. For example, they can call the Help Desk service to inquire about system operations or obtain information of equipment/system operating status and restoration in the event of an emergency.




## *Providing services to meet local needs by leveraging the know-how and service structure in Japan*

Azbil received an order for an ESCO*2 project for a large building complex in Thailand where the need for energy saving is high. In this project, we are striving to reduce power consumption and operators' workloads by visualizing energy usage and ensuring optimal operation and control of heat source equipment.The use of the remote maintenance service in this complex enables us to examine energy-saving results and further operational efficiency by upgrading facilities and other improvements.

It is becoming popular in Singapore to demand not only energy conservation, but also the operational quality of buildings. Faced with a shortage of skilled building management staff in the country, building owners are expressing a strong need for operation support services for BA systems and for extensive Help Desk service.

For further expansion of the remote maintenance service for overseas customers, it is crucial that the consulting sales representatives and service engineers of our overseas subsidiaries and our technical support staff in Japan collaboratively establish a service structure centering on the service infrastructure in order to provide the products and services that match the local circumstances in each country.

We believe that customers in Southeast Asia and East Asia are becoming increasingly conscious of using and maintaining high-quality products and systems in optimal condition to ensure many years of reliable operation. The high-quality Japanese services and maintenance in which Azbil excels can play a pivotal role in meeting such needs. Guided by its philosophy of "human-centered automation," the azbil Group continues to provide products, services, and solutions that create added value for customers throughout the building life cycle, thus contributing to the businesses of customers around the globe.

***1 ENEOPT**
A coined word combining "Energy" and "Optimization." It is a general term used to refer to Azbil Corporation's products and services related to environmental and energy-saving solutions.

***2 ESCO (energy service company)**
A business providing comprehensive energy conservation ranging from energy-saving analysis, measures, and fund procurement to energy reduction guarantees.

Keywords A to Z Vol.3

# Keyword Demand Response

**Demand response is a method of balancing the supply and demand for electricity by adjusting consumer usage according to the amount of power available, instead of the conventional method of adjusting power generation to consumer demand.**

## *Encouraging users to save power during peak hours*

Electricity is an essential energy of our everyday lives. The demand for electric power varies greatly even in a single day. Utility companies need to have sufficient generating capacity to prevent power shortages during peak demand periods. If several tens of peak-demand hours per year could be shifted to off-peak hours, utility companies could reduce investment costs for expanding facilities to meet peak demand.

In order to take a balance of supply and demand electricity, giving consumers incentives to adjust their usage of electricity at times such as peak hours is called "demand response."

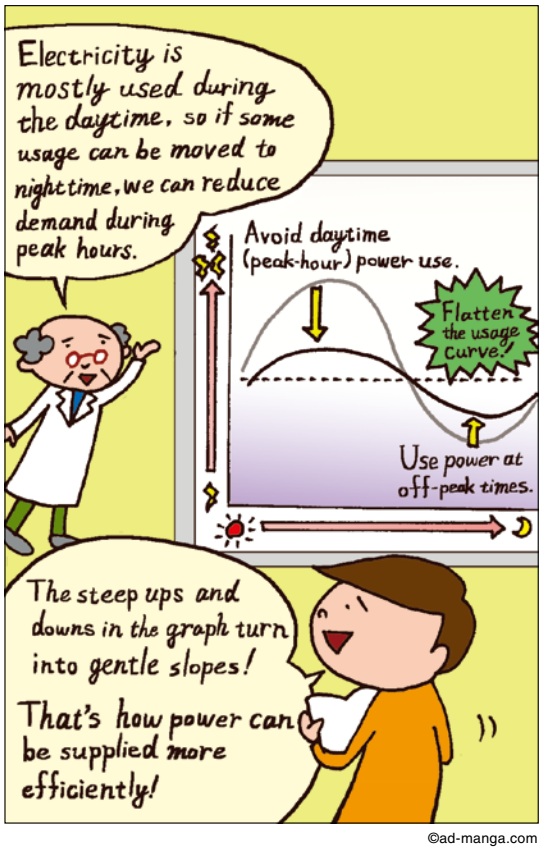
Four typical methods of adjusting power consumption using demand response are:

1."TOU (time-of-use) pricing," in which rates are higher in peak seasons or peak hours to induce users to use power when rates are lower.

2."CPP (critical peak pricing)," a system that is employed in an emergency in order to significantly raise rates and restrain power use at critical peak times.

3."RTP (real-time pricing)," in which power rates vary hour by hour and day by day according to the actual cost of power procurement as determined by market transactions. Each day's power rates are determined by demand projections made on the previous day, so users are aware of the current day's rates as they make decisions about the amount of power to use.

4."PTR (peak-time rebate)," a system in which a part of the power rates is refunded to consumers who reduce power consumption during peak times.

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## *Demand response, applicable also with renewable energy*

Demand response is also expected to make contributions in the area of renewable energy. For instance, solar power generation has the difficulty to provide the continuous availability of electricity due to changes in the amount of sunshine. A demand response system would make it possible to adjust demand according to the amount of power generated.

Aggregator companies, which play the role of "coordinator," helping to adjust the peak demand by commercial facility or office building, are also important for a demand response system. An aggregator company is a business operator providing a full range of services from introduction of a system utilizing IT to the actual operation of the system. Utility companies and others are proceeding with proof-of-concept testing of demand response in collaboration with aggregator companies.

Demand response can be regarded as an investment in restraining consumer demand for power, rather than making investments in increasing power generation capacity, in order to deal with peak-time power requirements. As society's awareness of efficient use of electricity grows, there will be more opportunities for the practical application of demand response.

savic-net™for Integrated Building Management Systems (hereinafter "savic-net for IBMS") is the latest system solution of the azbil Group for a large-scale complex facility that achieves comprehensive monitoring and control of various building subsystems.

savic-net for IBMS supports open network protocols and delivers efficient, high-quality management of facility, energy, and tenant information.

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Yamatake Corporation changed its name to Azbil Corporation on April 1, 2012.

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