

Special Features

By pursuing "human-centered automation," our core businesses contribute to the realization of a sustainable society.



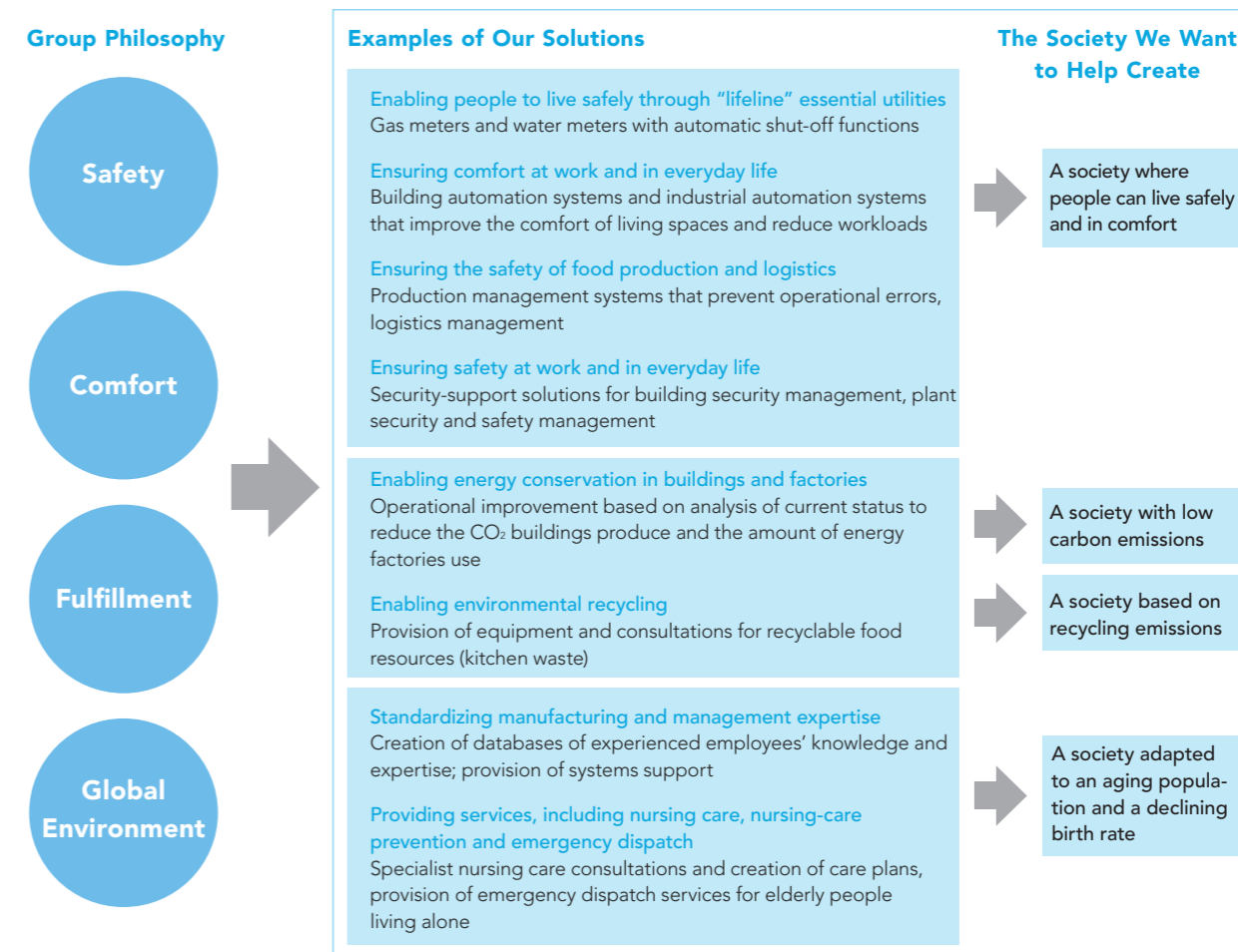
As problems including global warming, an aging society and risk management deepen, societal conditions are changing with dizzying speed. In addition to individual and regional initiatives, these conditions call for technology, ideas and action transcending companies and countries.

Contributing as a corporate citizen to the realization of a sustainable society lies at the heart of the Group philosophy. In order to provide people with "safety, comfort and fulfillment," we will draw on rich human resources, advanced technical skills, on-site capabilities and measurement and control technologies developed over many years as a leading manufacturer of control equipment to play useful roles in a wide array of business areas.

In core businesses, we pursue "human-centered automation" and address such issues as global warming to contribute to the creation of a better society.

"Human-centered automation" Supporting Society

To help realize a better society, we are applying the concept of "human-centered automation" in a wide range of measures, tackling such issues as conserving energy and reducing CO₂.



Toward a Low-Carbon Society 1 Conserving Energy in Living Spaces

Crude oil price hikes have further focused worldwide attention on energy problems and on environment control technologies that offer reliable, effective ways of addressing these problems through highly efficient energy-conserving devices. Furthermore, mindful of its responsibilities as the chair of the Toyako G8 Summit, the Japanese government has stepped up energy conservation measures not only in the industrial sector, which accounts for approximately half of the energy Japan uses, but also in the general consumer and transportation sectors, which have seen growing demand for energy in recent years. In response to those trends, azbil is developing one-stop environmental solutions businesses to help realize a low-carbon society. We achieve these solutions by exploiting technology for HVAC control, technology for calculating efficient energy conservation plans based on extensive experience and data, and our employees' abundant expertise and technical skills.

ESCO Business Overview

The ESCO (Energy Service Company) business comprises private-sector companies that advance energy conservation by offering comprehensive services combining technology, facilities, personnel, capital and other resources that are necessary for saving energy in factories and buildings. The investment required for energy-saving and operational improvements are all offset by lowering business expenses through energy savings, and energy reductions and plant refurbishments can be accomplished without harming the environment. This generates earnings for customers and helps preserve the global environment.

In Japan, the Group was a pioneering participant in ESCO businesses, and we continue to promote comprehensive energy-saving services centered on our Total Energy Management Service, or tems™.

Introducing ESCO Business Initiatives*



Reducing CO₂ Emissions Suma Aqualife Park in Kobe

Based on a CO₂ reduction strategy that Kobe City prepared, Suma Aqualife Park became the first aquarium in Japan to embark upon an ESCO project. Moreover, it was the first time Kobe City had taken on such a project at one of their facilities. Upgrading the control systems for aquarium water circulation pumps and HVAC reduced energy usage of such equipment by 46.1%, the equivalent of 400 tons of CO₂ and more than 260 kl of crude oil annually.



Winner Silver in the Superior ESCO Business Awards Kanbara General Hospital

At Kanbara General Hospital, we implemented the first ESCO project for local government in Shizuoka Prefecture. By upgrading heating equipment, we realized approximate annual reductions of 23% for energy usage and 20% for CO₂ emissions. As the first of its kind at a Tokai region hospital, the ESCO project attracted a lot of attention from the local community. Also, in 2007 the project won silver at the Second Superior ESCO Business Awards organized by the Energy Conservation Center, Japan.



Realizing Japan's First Support-type ESCO Project for Energy Conservation Operations SELVA Shopping Center

At the SELVA shopping center in northern Sendai, in Miyagi Prefecture, we achieved Japan's first support-type ESCO project for energy-conserving operations. The project incorporates an innovative scheme whereby the benefits are distributed not only to the owner and the ESCO provider but to the building management company if the facility outperforms energy conservation targets. In 2008, the project received a special prize at the Third Superior ESCO Business Awards.

*Shown here are some example orders showcased in our public relations brochure. They are shown with the permission of the customer.

Toward a Low-Carbon Society 2 Conserving Energy in the Industrial Sector

Conserving energy, manpower, and resources and reducing CO₂ emissions in the industrial sector through automated control of utilities production plant



Toyota Motor Corporation's Tahara Plant

As part of efforts to conserve energy and resources at the Tahara Plant, we introduced the U-OPT (Utility Optimization) System for utilities production plant, which eliminates waste, inconsistencies and overloading in energy usage. By achieving efficient operation of utilities production plant, we helped the plant conserve energy and manpower and reduce CO₂.

Reducing CO₂ Emissions from Energy Usage

Since its establishment, Toyota Motor Corporation has sought to enrich society through automobile manufacturing. Toyota is pursuing sustainability through its three sustainable concepts "Technology," "Manufacturing" and "Social Contribution." As part of those efforts, Toyota hopes to achieve sustainable plants. Since 2002, Toyota has been furthering power innovations in the automotive field through the introduction in stages of systems that support the efficient operation of utilities production plant at its plants. One such plant is Tahara, which produces 500,000 vehicles a year, including hybrid vehicles under the high-end Lexus brand.

At the Tahara Plant, hot and cold water generated from such utilities production plant as boilers, cogeneration systems, chillers and thermal storage tank is supplied throughout the year to the plant's buildings and paint lines. As temperature and humidity levels affect painting quality, stable air-conditioning is critical. When utilities production plant is controlled manually, operations tend to supply more energy than needed. By introducing automated control of utilities production plant, we helped the plant achieve efficient operations that minimize energy, manpower and resources as well as reduce CO₂ emissions.

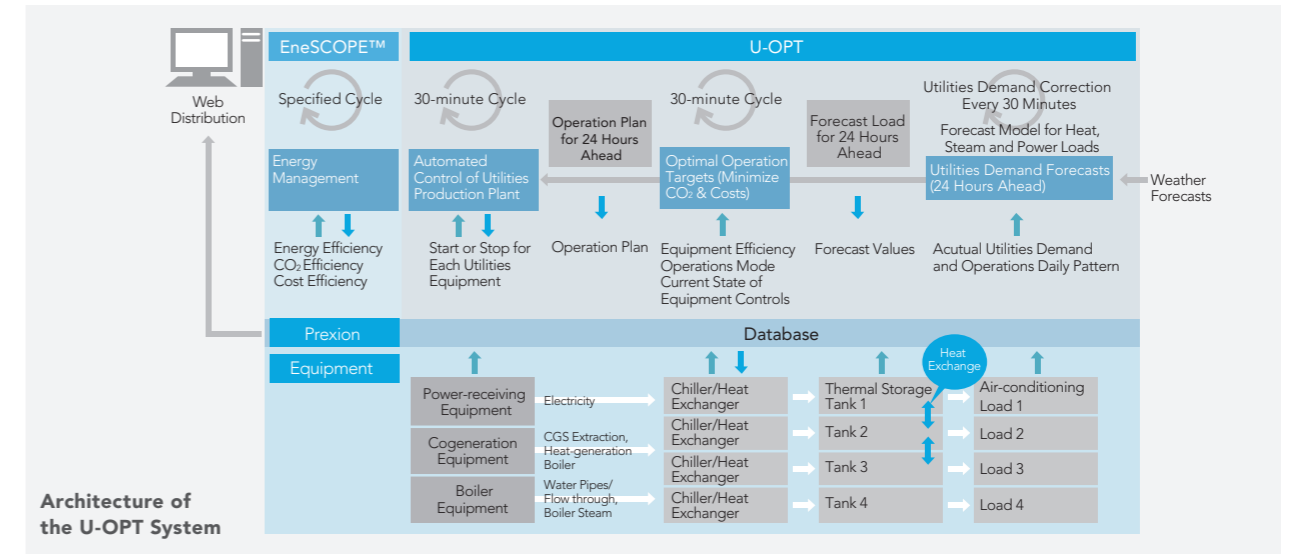
Yamatake Implemented U-OPT System that Customers Can Use with Confidence at Their Sites

In 2006, the Tahara Plant launched a project to introduce support systems for utilities production plant to eliminate waste, inconsistencies and overloading in energy supply. For the plant's utility support systems, Toyota chose to adopt Yamatake's U-OPT System software package, which optimizes energy supply to minimize the CO₂ emissions and energy costs of utilities production plant. Mr. Konno of Toyota commented, "We use many of Yamatake's field instruments in the plant. We always rely on Yamatake because whenever there is a problem, it only takes one telephone call, and they quickly respond. We have chosen them as a partner because we can confidently entrust them with work."

At the Tahara Plant, which operates 24 hours a day, Yamatake advanced the project based on exhaustive consultations and discussions with the plant's personnel on how best to change over from existing operational systems to automated control systems.

Furthermore, before actually starting up the system, we conducted verification for one week. We did that to check the reliability of the system and eliminate any uncertainty among the plant's employees about automated control. Working round the clock in shifts, Yamatake employees spent time consulting with personnel at the plant and helping them transfer from the existing operating system to an automated control system.

Mr. Fujiwara of Toyota recalls that "When building the system, Yamatake heeded the opinions of our employees on-site and took into consideration equipment rotation and constraints of continuous operation. As a result, they created a system that plant personnel find easy to use. Also, the transition went smoothly because, when differences



arose between the direction of operations based on our experience and optimized operations by automated control, Yamatake provided us with readily understandable reports supported by data." As a consequence of this project, the plant's personnel now confidently rely on U-OPT System to control the operation of utilities production plant.

In addition, to further optimize the plant's energy usage, we use the energy management tool, EneSCOPE™, and implement an ongoing PDCA (Plan, Do, Check, Act) cycle. Yamatake is also responsible for adjusting utilities production plant when the plant conditions alter due to production line changes.

Toward Realization of Sustainable Plants

We estimated the introduction of our systems would reduce the plant's CO₂ emissions by 6%. In fact, we achieved reductions of between 4% and 7% in summer and 3% in winter. Of course, our systems also lightened the workload of plant personnel. Moreover, the difference between U-OPT System's energy-use projections and results was only ±3%.

Mr. Tsuda of Toyota remarked, "Because they enable highly accurate projections, Yamatake's systems meet this plant's need for stable supply and stringent control. Also, for a large plant using huge amounts of energy, reducing CO₂ emissions by 4% to 7% is very significant. And, we expect further benefits this year when we begin full-fledge operation of the systems."

Thanks to the success of this project, Yamatake is currently building a U-OPT System for utilities production plant at Toyota's Kinuura Plant, which manufactures drivetrain parts. At the Tahara Plant, which is in its second year of using the U-OPT System, we plan to develop an even more effective system by using EneSCOPE™ to realize continuous improvement and also apply to equipment maintenance. In addition to regular maintenance, collected data will enable appropriate maintenance based on the present condition of equipment.

Mr. Konno of Toyota commented, "With next year's 30th anniversary approaching, we launched our sustainable plant initiative at the Tahara Plant. So that the local community continues to view the plant's presence in a positive light, we have to meet environmental management targets without fail. With that in mind, we will rely on Yamatake's ability to deliver solutions based on an intimate knowledge of our worksites."

Glossary

U-OPT: Utility Optimization System Software Package
U-OPT System has two major functions: to predict utilities demand, such as steam, cooling water and electricity, for the upcoming 24-hour period, and to optimize utilities production plants to better minimize costs and CO₂.

EneSCOPE™ Energy Monitoring, Analysis and Management System
EneSCOPE™ enables PDCA cycles in ongoing energy conservation activities by collecting, analyzing and managing data on the usage volumes of electricity, various types of fuel, steam and water. This energy management system allows plant managers to "visualize" energy usage volumes, CO₂ emission volumes and how much energy chillers, boilers and other heat source equipment are using.

Tahara Plant, Toyota Motor Corporation

Location: 3-1, Midorigahama, Tahara City, Aichi Prefecture, Japan
Start of operations: January 1979
Main products: Lexus (LS, GS, IS), Land Cruiser PRADO, etc.

On a consolidated basis, Toyota is vying to become the world's largest automobile manufacturer in terms of vehicle production. The company brought hybrid vehicles to market ahead of competitors and is advancing a range of industry-leading environmental measures.



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Toward a Low-Carbon Society 3 Contributing to CO₂ Reduction through the Research and Development Sector

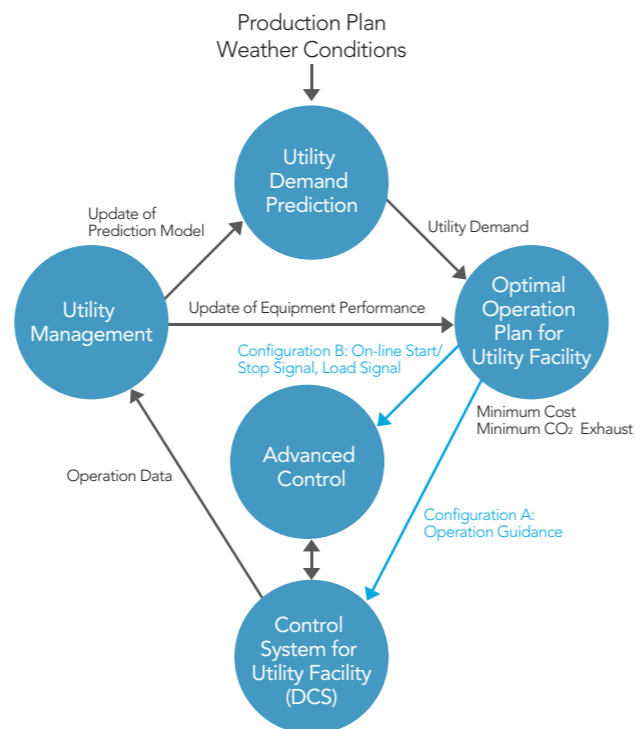
In order to realize a low-carbon society, rather than forcing ordinary people to assume the burden of CO₂ reduction, we must develop the technological capabilities to reduce CO₂ while providing "safety, comfort and fulfillment." The wellspring of the Group's growth is original research and development focused on measurement and control technologies. Accordingly, we are strengthening and stepping up the pace of research and development through the Fujisawa Technology Center, in which, upon its completion in 2006, we consolidated our advanced technology development departments. This section showcases some development achievements of recent years that have already become innovative products or integral parts of one-stop environmental solutions businesses, which are conserving energy and labor and reducing CO₂ emissions in buildings and factories.

U-OPT

Minimizing the CO₂ Emissions and Energy Costs of Energy-producing Systems

U-OPT is a system that improves energy conservation and minimizes the energy costs and CO₂ emission volumes.

U-OPT System achieves highly accurate load projections up to 24 hours in advance based on weather forecast data, outside air conditions and load results. Furthermore, to minimize CO₂ emissions, the system prepares optimal operational plans for boilers, cogeneration systems, chillers and thermal storage tanks. Also, the system's simulation function allows plant personnel to examine the feasibility control methods for utilities production plant and improvements to operating plans. The system also has energy management functions that help realize further energy conservation by allowing personnel to monitor efficiency and understand effects (please see pages 20–21 for examples).



Building-Scope™

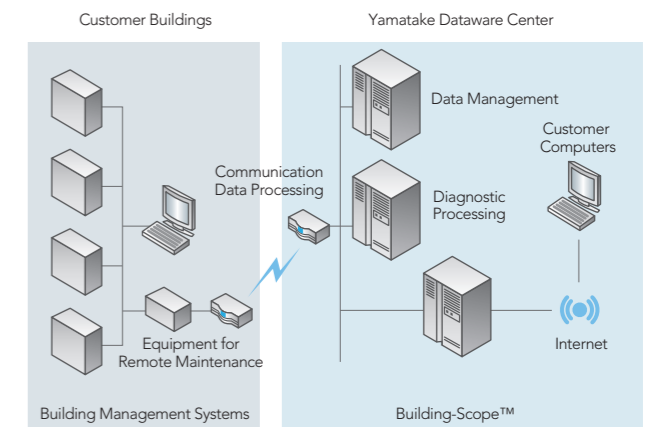
Contributing to Responses to the Revised Law Concerning the Rational Use of Energy through Building-Scope™ Energy Data Delivery Service

Analysis of energy operations is essential to conserve energy used by buildings while maintaining their comfort. However, analysis of energy operations places a considerable burden on building owners because it involves complex and difficult tasks that include checking meters, collecting data and analyzing and preparing graphs.

Building-Scope™ is a groundbreaking energy and indoor comfort data service, which collects building management data on temperature, humidity and other indicators through connections between the building management systems of



customers that have concluded system maintenance contracts and Yamatake Dataware Center. We process the data on energy usage and indoor comfort, covering the period up until the preceding day, to make it easily digestible for customers. We then deliver it to them via the Internet. Amid the increasing stringency of energy-related and environmental laws and statutory regulations in recent years, our service enables building owners to comply with the energy usage targets for buildings while creating comfortable living environments.



Intelligent Compo Series

Achieving Further Energy Conservation in Buildings through Intelligent Control Terminals, the Intelligent Compo Series: From Position Control to Flow Volume Control

Through the incorporation of microcomputers within building automation equipment, such as sensors, dampers and valves and the use of control terminals, the Intelligent Compo series enables the collection of site-specific control-related data that was previously impossible to collect.

In the Intelligent Compo series, ACTIVAL™, a motorized control valve with flow measurement and control functions, can maintain optimal flows by measuring through-flow volumes in addition to conventional valve functions. Therefore, the product enables optimal building operations that conserve energy and reduce CO₂ emissions.

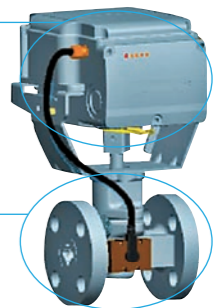
Basic Structure

Data storage

- CPU is installed, valve operations monitored. Data on past performance is stored.
- "Operations Period" integrated value
- "Position" integrated value
- "Energized Period" integrated value
- Frequency of operation

Sensor

Newly developed temperature and pressure sensors are installed and the flow rate is calculated. The position of the valve is automatically controlled to maintain an optimum flow rate.



Energy Conservation PDCA

Providing and Verifying Energy Conservation Solutions for Buildings Based on Energy Conservation PDCA Data

Since a building's energy consumption varies greatly according to weather conditions and usage, expertise in equipment as well as planned verification of energy data are required.

At Yamatake, we apply our original data processing technologies, such as RSM-S (Response Surface Methodology by Spline), which capitalizes on our research into datamation technology (multivariate data processing technology), and TCBM™ (Topological Case-Based Modeling) to create models of a building's energy consumption characteristics from operational data collected from building management systems. Based on these models, we provide energy conservation solutions tailored to individual buildings. Using the results of these solutions, we advance PDCA cycles in tireless pursuit of further energy conservation.

