

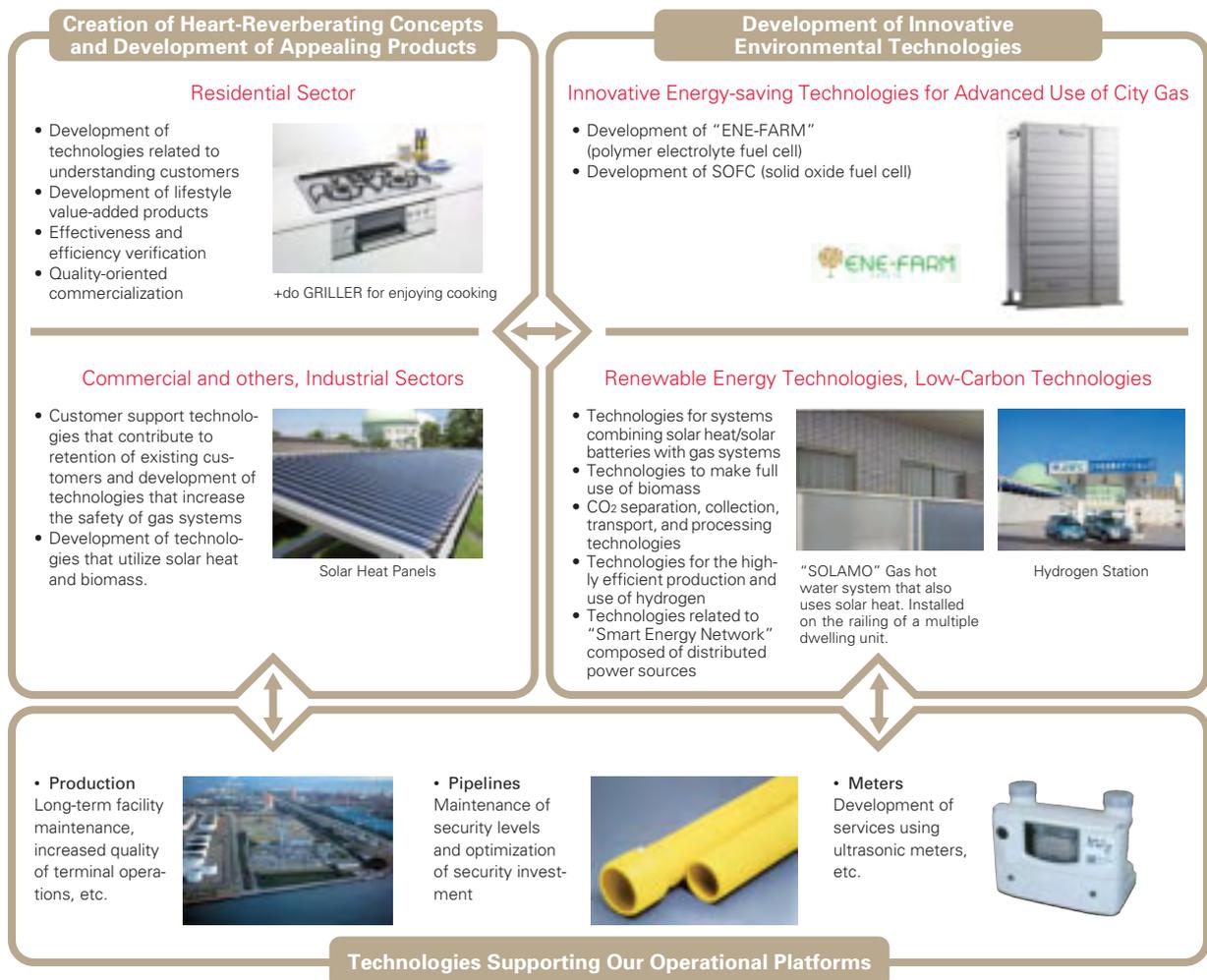
TECHNOLOGY DEVELOPMENT

The Tokyo Gas Group has always maintained a focus on technical development, and the Company has developed its operations while repeatedly taking on the challenge of new technologies. As we strive to respond rapidly and accurately to changes in the operating environment, we are working to develop technologies that will open up new energy frontiers.

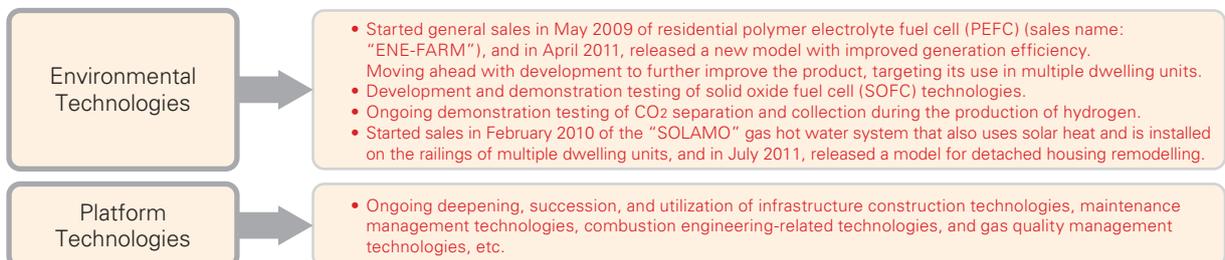
Strategic Direction of Technology Development

In technology development, we focus on three areas: (1) the creation of heart-reverberating concepts and the development of products that give concrete form to the value created by those concepts, (2) the development of innovative environmental technologies that will contribute to the realization of a low-carbon society, and (3) technologies that support the operational platforms for stable administration of gas operations and for realization of higher-level usage and cost reductions. In the fiscal year ended March 31, 2011, the Company allocated about ¥9.9 billion to technology development.

The Technology Development Strategy of Tokyo Gas



Major Outputs and Initiatives in Recent Years



Creating Tomorrow's Low-carbon Society

Tokyo Gas advocates the use of “smart energy networks” for achieving a next-generation low-carbon society. A smart energy network combines large-scale electricity and gas networks with dispersed energy supply sources, such as gas cogeneration systems and renewable energy sources. Optimal network control using information and communications technology realizes stable energy supply while reducing energy consumption and CO₂ emissions.

Gas Cogeneration Systems Support Future Urban Planning



Kazuhisa Okamoto, Group Manager of the Solution Technology Department, who is working to create a smart energy network

In a smart energy network, the installation of local gas cogeneration systems and other dispersed energy systems reduces energy consumption and CO₂ emissions through optimized area-wide control of generated heat and electricity. In addition, independently operated gas cogeneration systems, a dispersed power source, continue to supply electricity to essential loads within the network in the event of a power outage. This highly reliable electricity supply system promotes safe urban planning, achieved by establishing disaster prevention bases at hospitals, schools, and other central locations. In the future, information and communications technology will be used to control the output of gas cogeneration systems and electricity demand within an energy network in coordination with large-scale centralized power sources, such as thermal power plants. By taking on part of the function of adjusting system-based power generation, the stabilization of this main power source will help facilitate the introduction of large volumes of unstable renewable energy sources, such as solar and wind power.

Tokyo Gas began the demonstration of a gas cogeneration project at its Senju site in fiscal 2010 and at a multiple dwelling unit in Yokohama in fiscal 2011.

Smart Meter Systems Create New Shared Value

In a smart energy network, the key to optimizing the efficient use of energy lies in the precise measurement of the amount of energy created and consumed, and the supply of that information via a communications network. Tokyo Gas is working jointly with two other gas companies, as well as other partner manufacturers, on the development of a next-generation smart meter system. The proliferation of smart meter systems will reduce CO₂ emissions in the residential and commercial and others sectors. Furthermore, the digitization of energy-related data has the potential for creating new shared value through the establishment of new businesses. Our efforts targeting future utilization of such systems extend beyond the development of next-generation ultrasonic gas meters, and next-generation metering systems with high-speed communications and advanced functions. Tokyo Gas is collaborating with other subsidiaries and affiliates to promote the development and assessment of an optimal communications infrastructure. We are also working to establish common specifications and acquire an international standard for a wireless system, which is the top candidate.



Hajime Furusawa, Group Manager of the Product Development Department, who is currently developing a next-generation smart meter