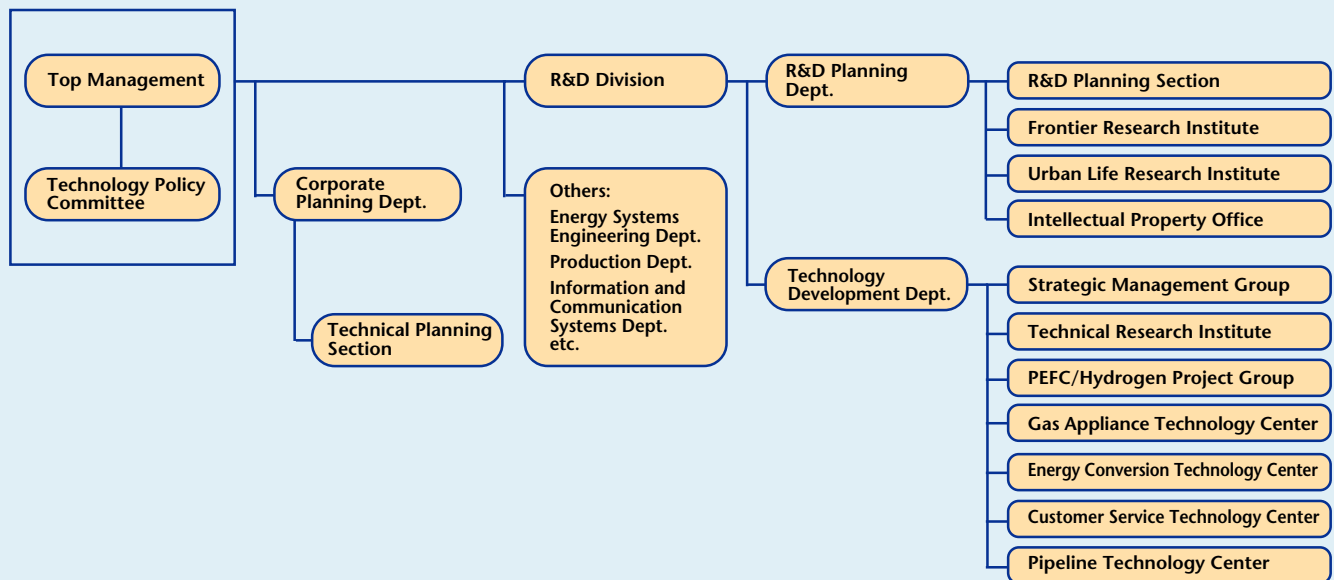


# A Focus on Technological Innovation

At Tokyo Gas research and development is positioned as a major corporate theme as a means of driving growth in existing businesses and creating business opportunities. Our main goal is to ensure that Tokyo Gas maintains its position as the preferred energy supplier. To this end, we must stay on top of a dynamically changing business environment, while placing emphasis on efficiency and profitability through selection and concentration of resources. Three areas have been singled out for R&D in line with this policy.

## The Tokyo Gas R&D Organization



### Developing PEFC Cogeneration Systems

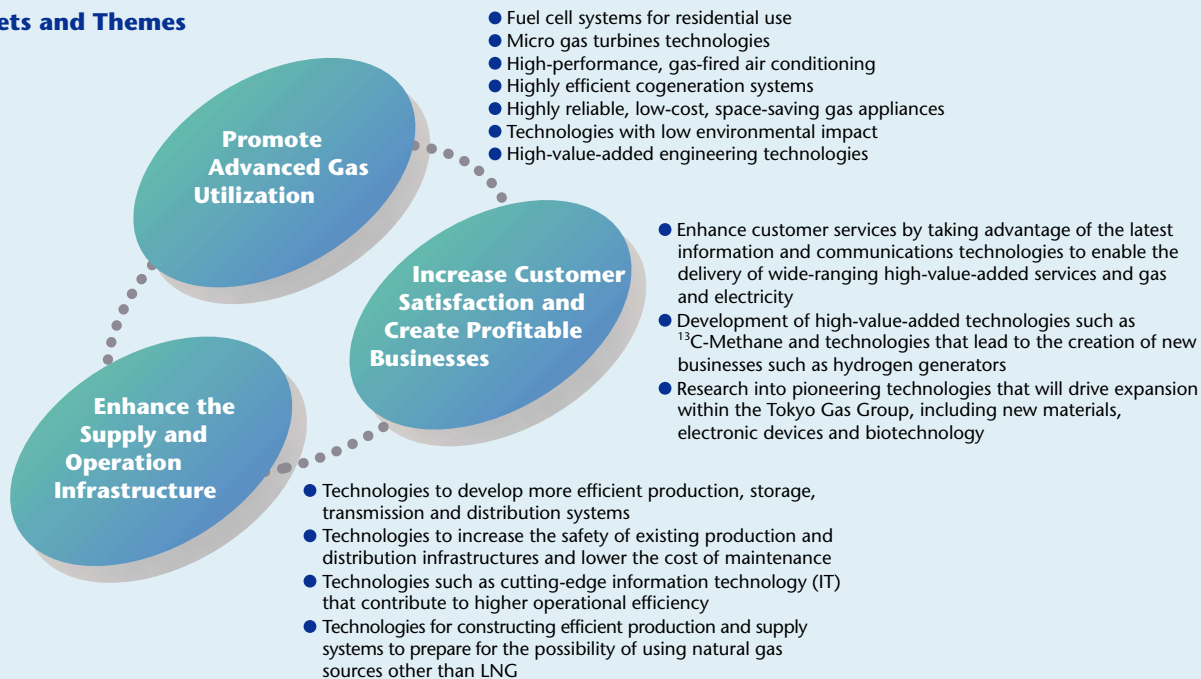
Polymer electrolyte fuel cell (PEFC) cogeneration systems for residential use are seen as a promising new application for natural gas, but raising thermal efficiency has been a stumbling block. Now Tokyo Gas' efforts have resulted in the development of a compact natural gas integrated fuel reformer (a key component of PEFC systems), which achieves extremely high thermal efficiency of 90% (HHV base). This is the highest documented efficiency in the world. Tokyo Gas is already supplying this type of reformer to PEFC system manufacturers.

Tokyo Gas is also working to develop technology that will make possible the supply of hydrogen for fuel-cell powered vehicles of the future.

### Handy Remote Methane Detector

Tokyo Gas has developed the world's first remote methane gas detection equipment that uses supersensitive infrared absorption spectrophotometry with a semiconductor laser light source. This sophisticated equipment was developed to make the process of detecting gas leaks more efficient and to raise safety levels. Facilitating simple, instantaneous inspection, this equipment can detect leaks in confined spaces, at high altitudes and in dark areas where detection was previously problematic. Tokyo Gas put this detector into operation in the year ending March 2002.

## R&D Targets and Themes



### Promote Advanced Natural Gas Utilization

Prevailing in an era of intensifying competition in the energy sector in Japan will require Tokyo Gas to bolster its engineering abilities and technological development to assure the continued loyalty of our customers. This will involve developing technologies to make gas appliances increasingly efficient, compact and reliable, safer, less costly, and more environmentally friendly.

### Enhance the Distribution and Operation Infrastructure

Meeting society's demands for the increased use of natural gas as the primary source of energy and strengthening our customer base are our main priorities. To this end, we are developing essential technologies to construct an efficient production, storage, transportation and distribution system.

### Increase Customer Satisfaction and Create Profitable New Businesses

In an era of mega-competition in the energy sector, ensuring that customers continue to choose Tokyo Gas as their energy supplier is a key management goal. It is the driving force behind our push to develop essential technologies to make possible the far-reaching delivery not just of electricity and gas but also of value-added services that both anticipate customer needs and satisfy them quicker than other energy providers.



#### LEFT

Tokyo Gas is using Walk Map, a cutting-edge gas pipeline mapping system. This system can be used with mobile information terminals.

#### RIGHT

Tokyo Gas is continuing basic research on methane hydrate as an option for a future natural gas source.