A Conversation with the President of the Gas Turbine & Machinery Company

Current status and future prospects of the distributed power generation system business

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Particular attention remains focused on the supply of electric power. Are changes seen in customer needs?

In the past, electric power was supplied stably from centralized power generation facilities. Since the Great East Japan Earthquake in March 2011, however, the advantages of distributed power generation have been re-evaluated. In addition, with the development of shale gas advancing in the United States and elsewhere, natural gas, a clean fuel, is drawing greater attention. Backed by this, needs are rising for distributed power generation systems using our gas turbines and gas engines.

Moreover, for the purpose of utilizing resources effectively and preventing global warming, attention is being focused on systems that thoroughly use exhaust heat and those promoting the use of renewable energy.

And, with increasingly greater importance being focused on security, safety, and disaster preparedness, customer inquiries in this connection have increased.

What are the features of Kawasaki's power generation system solutions?

We have various types of energy engines that form the core of distributed power generation systems and the know-how for designing systems to effectively utilize them, and we are capable of providing system solutions with which customers can enjoy the maximum benefit.

Based on "heat-oriented" gas turbines which have high overall efficiency and are suitable for long, continuous operation and "electricity-oriented" gas engines that follow load variation accurately and have high power generation efficiencies, we have a lineup

of heat recovery steam generators that use waste heat effectively, as well as absorption chillers, steam turbines and binary turbines that are combined with these gas turbines and gas engines to provide customers with the best systems for their needs.

Our products have as their foundation over a century of experience with marine engines and over a half century of experience with aviation and transportation engines. Transportation engines, for example, must be small-sized and lightweight, operate at high efficiencies over a wide range, and be highly reliable. We are experienced in addressing these requirements, and possess very advanced technologies. Energy engines are manufactured on the basis of sophisticated design technologies covering the fields of aerodynamics, combustion, structure, strength, materials, control, electric power conversion, and the like, as well as high-precision manufacturing technologies. We refine our technologies through constant efforts and the close linkage between the company in charge and the Corporate Technology Division, and are advancing our products and ability to make system proposals.

What are the more recent topics?

We launch new power generation systems and energy-related products on the market one after another.

In August 2012, Nihon Techno's Sodegaura Green Power Plant, which has an output of 110 MW from 14 green gas engines boasting the world's highest power generation efficiency, was commissioned and the plant now operates at a power generation efficiency of 49.5%. This is Japan's first power plant with an output greater than 100 MW composed of gas engines only, and the first new power generation facility built for a company other than general electricity utility after the Great East Japan Earthquake. We feel the start of a new era of electric power supply with this event.

As a new topic concerning green gas turbines, development work on the L30A, the largest model of ours, has been completed, and commercial operation of the model started at the Aboshi Plant of Daicel Corporation in October 2012. With excellent power generation performance (world's highest class efficiency of 40%) and low NOx emission characteristics, our gas turbines have come to cover an extremely wide range of power generation capacity from 650 to 30,000 kW, thanks to the development of the above model.

Also deserving special mention as natural energy utilization systems are geothermal binary generator sets and solar absorption chillers that are now undergoing demonstration tests.

Conclusion

The draft power supply structure for 2030, to be incorporated into Japan's basic energy plan, requires cogeneration to account for 15% of the country's electric energy structure, namely, to be increased by about five times the current scale. We will do our best so that distributed power generation systems can contribute to the fulfillment of this plan.

We will further improve and develop the performance and quality of green gas engines and green gas turbines, while also focusing on strengthening our ability to propose system solutions unique to us.

In terms of our activities overseas, we will make the most of our bases to grasp user needs and increase the sale of distributed power generation systems, with the aim of providing the best system for the intrinsic characteristics of the different regions.

To materialize a sustainable society, which is the greatest challenge to mankind, wider use of renewable energy is indispensable. Distributed power generation/cogeneration systems that use fossil fuels efficiently play an important role in using natural energy that is distributed thinly and widely, and fluctuates considerably. We at Kawasaki believe that it is our mission to support security and safety with emergency power generation, to use limited resources effectively via clean-fuel-based cogeneration systems and thorough use of waste heat, and to contribute thereby to the realization of a sustainable society.