President's Message

On the occasion of the "Technical Achievement and Outlook" edition, I would like to say a few words.

The nuclear power plant accidents and power shortages resulting from the Great East Japan Earthquake that occurred in March 2011 have caused Japan to question the state of Japanese society and economy. A review of energy policy, heightened awareness of energy conservation and an awareness of the necessity for measures to maintain a stable supply of electric power, and the like have prompted changes in our consciousness. In July 2012, the Feed-in Tariff (FIT) Scheme for renewable energy went into effect, and renewable energy focusing on photovoltaic and wind power generation quickly began to come into widespread use. In this way, I think this past year was one in each we took a step toward the creation of responsible and sustainable societies.

Fuji Electric adopted the new brand statement of "Innovating Energy Technology" in July 2012. This statement reflects the company's ongoing pursuit of innovation in electric and thermal energy technology in order to create products that maximize the efficient utilization of energy and to contribute to the creation of responsible and sustainable societies. Also, in October 2012, Fuji Electric entered into an absorption-type merger with Fuji Electric Retail Systems Co., Ltd., and has further leveraged this synergy by combining Fuji Electric's thermal energy technology with cooling and heating technology that has been cultivated in the vending machine business.

Fuji Electric's "energy-related businesses" con-

sists of the following three core areas: (1) key components that are based on electric energy technology, utilize power electronics technology that freely manipulates electricity, and have been cultivated since the founding of the company, including power semiconductors, power electronics equipment, motors, and electric distribution and control devices, (2) plants and equipment that are based on thermal energy technology, such as large thermal and geothermal plants, various induction heating devices and vending machines that employ cooling and heating technology, and (3) solutions based on measurement technology and energy management systems (EMSs) for optimally controlling electric and thermal energy.

In support of such an "energy-related businesses," our research resources are focused on developing technology for the responsible and effective supply and use of electric energy, technology for utilizing energy without waste and technology for optimally controlling electric and thermal energy.

In particular, we are focusing on the development of power devices that use next-generation silicon (Si) material, such as silicon carbide (SiC) and applied products. We have developed and sold inverters that employ SiC devices to realize lower loss and smaller size than were obtainable with silicon. In addition to inverters, we are also accelerating the development of power electronics products such as power conditioners (PCSs) and the like, that utilize SiC devices to realize ultra-low loss and ultra-compact size. We are also developing and selling distinctive high-efficiency devices such as a PCS, having the world's highest level of



efficiency for use in photovoltaic power generation applications, that utilizes a reverse-blocking insulated gate bipolar transistor (IGBT) element, a proprietary Si device of Fuji Electric, and features integrated ancillary devices. In this way, through the synergy of power semiconductor technology and power electronics technology, we will continue to promote innovation in electric energy technology.

As a thermal energy technology, heat pump technology contributes greatly to energy conservation. Fuji Electric has combined thermal and electric energy technologies to develop a data center air conditioning system that uses heat pump technology to realize high energy-saving performance. We have also developed and sold vending machines that utilize a revolutionary hybrid heat pump system that introduces, as a heat source, outside air and the waste heat generated when cooling a product. This vending machine uses 75% less energy than the model prior to adoption of the heat pump, and contributes significantly to energy conservation. Furthermore, we increased the capacity of a binary power generation system that uses hot water in the range of 100 to 200 °C to generate electric power. Geothermal energy can be utilized even more effectively with a "hybrid geothermal power generation system" that uses hot water after having been used for geothermal power generation and returned to a reinjection well. Fuji Electric is also actively engaged in innovation for this type of thermal energy.

In the midst of an actualized shortage of electric power, efforts to realize smart communities aimed at the large-scale introduction of renewable energy and the effective utilization of energy have intensified. Fuji Electric is developing EMSs that optimize the supply and demand of energy, and is participating in smart community demonstration projects. In Kitakyushu City, we are advancing the development and demonstration of cluster EMSs (CEMSs), factory EMSs (FEMSs), building EMSs (BEMSs) and retail store EMSs (REMSs). Thus, during public demonstrations that use a CEMS and smart meters, dynamic pricing that varies the unit price of power according to the power demand has been adopted to realize a power savings effect which has been confirmed to be as much as 13% (maximum) during the summer months.

Meanwhile, with the aim of expanding global markets with a focus on China and other Asian markets, Fuji Electric is promoting the development of such products as general-purpose inverters and UPSs that meet the price and performance needs of local customers. In addition, we are promoting the creation of a global supply chain, and strengthening our efforts in integrated development and production under the assumption that design (local design), materials procurement and production will be carried out at overseas manufacturing bases in Thailand, China and so on.

Fuji Electric is committed to the pursuit of innovation in electric and thermal energy technology and to contributing to global society through energy-related businesses, while accurately assessing the needs of society. We sincerely ask for your guidance and encouragement.

KITAZAWA Michihiro President and Representative Director

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