Foreword

Evolving Innovation

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The management policy of the Toshiba Group asserts its commitment to "achieving growth through creativity and innovation." In keeping with this commitment, we are striving to expand business opportunities by creating new forms of value and thus new business models, going beyond the advancement of existing energy and storage technologies. Our focus is on integrated storage, amalgamation of digital products, healthcare, renewable energy, smart communities, power electronics, electric vehicles (EVs), and other leading-edge fields. We aim to transform the Toshiba Group into a truly global enterprise that is aware of, and prepared to meet, ever-growing and constantly changing market needs.

The following is a snapshot of our achievements over the past year.

Total Storage Innovation

As part of its efforts to enhance integrated storage systems, Toshiba has developed a high-performance memory for smartphone and tablet applications that incorporates a stack of the world's smallest NAND flash memory fabricated using the 19 nm process. We have also released a hybrid drive that combines the capacity advantage of a 2.5-inch hard disk drive (HDD) with the read/write speed advantage of NAND flash memory.

We have delivered many digital products and services, as well as their combinations, including high-performance REGZA liquid crystal display (LCD) TVs and the "TimeOn" Regza cloud service that brings a new viewing experience to video content. Furthermore, we have commercialized a 4K ultra-high-definition (Ultra HD: 3 840 x 2 160 pixels) TV that incorporates a newly developed high-performance video processing engine for image texture enhancement.

Innovations in the healthcare field include a whole-body X-ray computed tomography (CT) scanner featuring reduced exposure dose and improved operability, and a magnetic resonance imaging (MRI) system with the latest platform designed for simple and reliable examinations and an "Eco mode" for power consumption reduction.

Total Energy Innovation

The Toshiba Group has successfully completed restoration work on thermal power plants and social infrastructure affected by the Great East Japan Earthquake. In order to help ease the tight energy supply in the wake of the earthquake, we have also assisted with the construction of new thermal power plants and the quick recommissioning of thermal power facilities that had been out of service. In the global arena, we have won a contract for a combined-cycle power plant system with the world's highest thermal efficiency of 62% (in terms of lower heating value: LHV), which consists of the latest gas turbine coupled with a high-efficiency steam turbine. In addition, we have provided new facilities for or assisted with the commissioning of photovoltaic, hydraulic, and wind power generators, contributing to the expansion of renewable energy utilization.

In the smart community field, Toshiba has participated in many demonstration experiments in and outside of Japan to globally promote smart community initiatives, and released new products that incorporate the smart metering technology of Landis+Gyr AG, a member of the Toshiba Group.

In the field of baseline power generation, Westinghouse Electric Company, also a member of the Toshiba Group, has been constructing pressurized water reactors (PWRs) in China and the United States.

The power electronics segment has witnessed innovations in design, such as high-efficiency permanent-magnet synchronous motors for railway cars known as electric multiple units (EMUs), and heat-resistant rare-metal-free magnets for motors. Furthermore, our SCiB™ rechargeable battery cell has been adopted for automobiles that provide an "idling stop" function, as well as for medium- and large-scale stationary storage battery systems.

These are just a glimpse of the technological innovations achieved by the Toshiba Group. We hope you will peruse *TOSHIBA REVIEW Science and Technology Highlights 2013*, and would appreciate your feedback, suggestions, and comments.