Foreword

Committed to Building Infrastructure Systems Available to All and to a Data-Connected Society

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In recent years, the world has faced escalating social issues, increasingly intense natural disasters due to the effects of global warming, pandemics exemplified by COVID-19, and economic insecurity resulting in heightened tensions following the outbreak of the Ukraine crisis. The Conference of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC), more commonly referred to as COP27, held in November 2022 negotiated loss and damage from climate change for the first time, reiterating the urgent need to accelerate and enhance climate action.

In keeping with the Basic Commitment of the Toshiba Group stating, "Committed to People, Committed to the Future," we have endeavored to provide solutions to social issues through businesses since our founding. In the briefing session covering the Toshiba Group management policy held in June 2022, we pledged to "contribute to the achievement of carbon neutrality and a circular economy," emphasizing the importance of both "safe, secure lifestyles for everyone" and "social and environmental stability." Specifically, we aim to build "an infrastructure that everyone can enjoy" and "a society connected by data." Not only will we leverage our knowledge and expertise cultivated over decades of experience in electricity, water treatment, transportation, and other social infrastructure businesses, but we will endeavor to harness "the power of data" to continually create new value based on our valued connections with customers.

Development of the digital economy is bringing about major changes in the business environment. We see the key to moving forward in (1) the idea of "Software Defined", which separates applications, software, and hardware to advance digital evolution (DE) which digitizes the current value chain, (2) the data derived from DE to spur digital transformation (DX) and provide platforms for data utilization, and (3) the power of quantum technology to spur quantum transformation (QX) and create new social value, optimally connecting all platforms across industries and raising industry competitiveness. We are committed to accelerating DE, DX, and QX initiatives to achieve carbon neutrality and a circular economy.

TOSHIBA REVIEW Science and Technology Highlights 2023 provides snapshots of some of the results of our development initiatives related to carbon neutrality, social infrastructure resilience, and the power of digital and data that we have undertaken to build "an infrastructure that everyone can enjoy" and "a society connected by data" through cyber-physical systems (CPS). It covers our latest achievements in the field of quantum technology in addition to technologies that were mentioned as having high business potential in the briefing session regarding the Toshiba Group management policy such as cuprous oxide (Cu_2O) tandem solar cells, film-based perovskite solar cells, light detection and ranging (lidar), and microelectromechanical systems (MEMS) sensors.

We will continue leveraging our technology and diverse development capabilities to achieve safe, secure lifestyles for all, social and environmental stability, and for the betterment of our children's future. By harnessing and maximizing the potential of the power of data in our energy, social infrastructure, and electronic device businesses, we will continue working toward the realization of carbon neutrality and a circular economy. We hope that you will enjoy reading *TOSHIBA REVIEW Science and Technology Highlights 2023*, and would appreciate your feedback, suggestions, and comments.