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FOREWORD

Carbon-based energy consumption and its environmental impact from released gaseous products, such as carbon dioxide (CO₂) or leaked methane (CH₄), is now of immediate concern. Notably, China (28%) and the United States (15%) are two largest emitters among all nations and together accounted for 15.47 billion metric tons of CO₂ release in 2018¹. It was strategic that both countries come together in 2008 and signed the Framework for the Ten-Year Cooperation on Energy and Environment during the fourth Strategic Economic Dialogue (SED). The Ten-Year Framework (TYF) called for U.S.-China collaboration in seven priority areas: clean air; clean and efficient transportation; clean, efficient, and secure electricity; clean water; energy efficiency; protected areas and nature reserves; and wetlands conservation.² Later that year, the Framework for EcoPartnerships which set forth the objectives, principles, and structure of the U.S.-China EcoPartnerships program was signed during the fifth SED. Over the decade the program was in existence, a total of 37 projects were successfully completed. One key aspect of the program was to bring together participants from public, private and civic sectors to work as project partners. Since the projects are of wider interest to the scientific community, it was decided to publish the findings from the ongoing projects. The first special volume titled: *"U.S.-China EcoPartnerships: Approaches to Challenges in Energy and Environment"*, was published in 2015 and included 18 papers authored by partners from both the U.S. and China³.

This special volume is intended to showcase results from projects that were active since the first volume was published in 2015. As in the previous volume, this volume also covers projects that fit under the larger umbrella of energy and environment. The EcoPartnership program officially ended on January 9, 2021 but it is our hope that the U.S.-China collaborations established under the EcoPartnership program will continue in the

¹Union of Concerned Scientists data updated July 2020. <https://www.ucsusa.org/resources/each-countrys-share-co2-emissions>

²U.S. Department of State. U.S.-China Ten-Year Framework for Cooperation on Energy and Environment. <https://2009-2017.state.gov/e/oes/eqt/tenyearframework/index.htm>. Accessed September 29, 2020.

³Mahajan D, Chai X, Holuj B, and Wu H. U.S.-China EcoPartnerships: approaches to challenges in energy and environment. *J Renewable and Sustainable Energy*. 2015; 7. <https://doi.org/10.1063/1.4929547>

Energy & Environment areas by finding a common ground to implement technological solutions for controlling atmospheric CO₂.

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