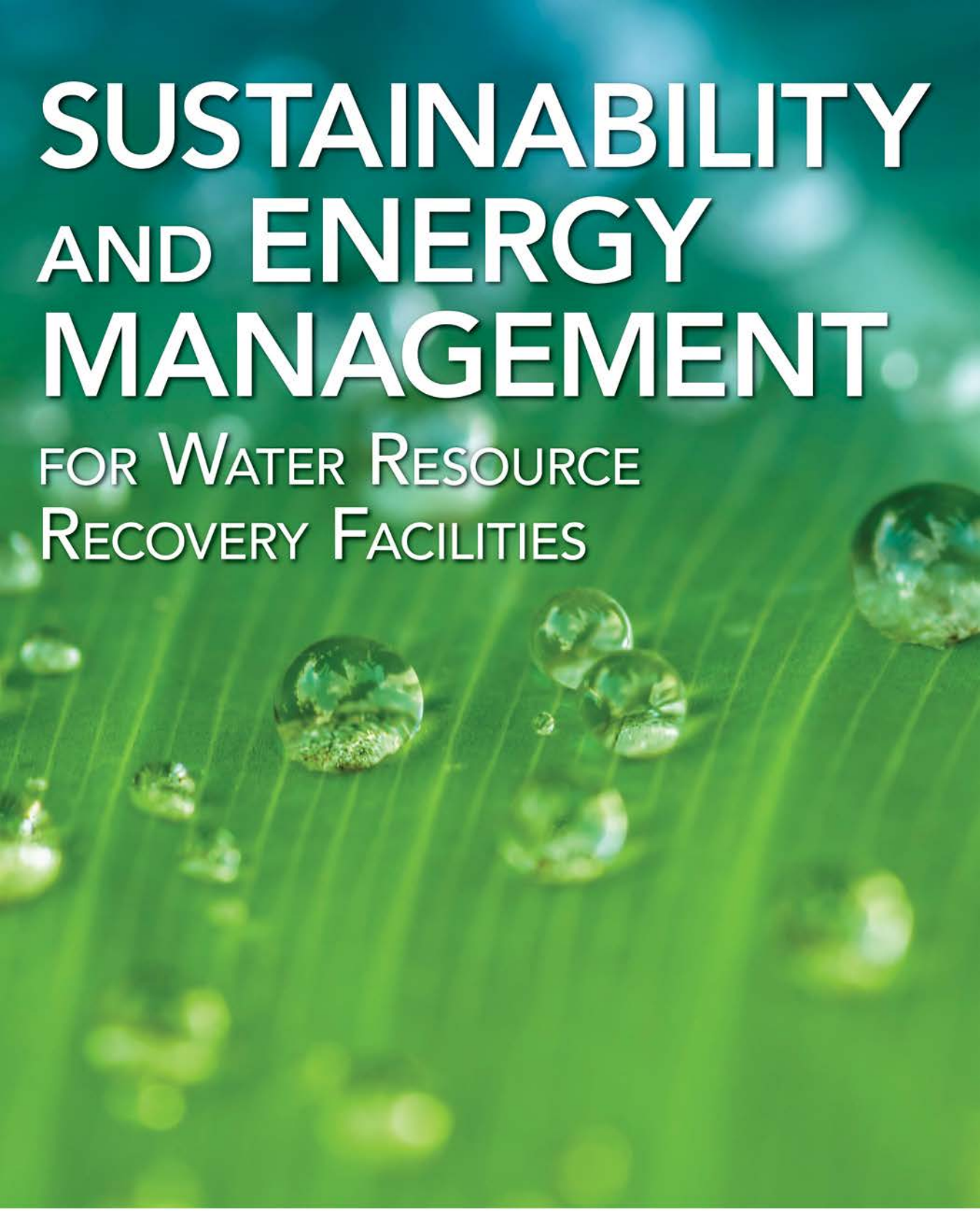
SUSTAINABILITY AND ENERGY MANAGEMENT

FOR WATER RESOURCE RECOVERY FACILITIES



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SUSTAINABILITY AND ENERGY MANAGEMENT FOR WATER RESOURCE RECOVERY FACILITIES

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Contents

List of Tables

List of Figures

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Sustainability and Energy Management for Water Resource Recovery Facilities

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1.0 INTRODUCTION

Energy savings and sustainable design deserve special attention to be sure water resource recovery facilities (WRRFs) have long-term adaptability and resilience to global climate change, volatile energy prices, and other predictable change scenarios. Municipal WRRFs in the United States use approximately 30.2 bil. kWh/yr, or approximately 0.8% of total electricity use in the United States (EPRI, 2013). Yet, of the approximately 14,780 WRRFs in the United States, only approximately 1268 (8.4%) include anaerobic digestion (which offers the potential to recovery chemical energy) and beneficially use this energy on site for production of power and/or heat (WEF, 2013).

The umbrella of *sustainability* covers long-term provisions for resilient facilities to manage a wider range of stressors, and treatment process adaptability to accommodate changing regulations. Sustainability in this context refers to the ability to continue operating without causing immediate or long-term harm to the environment, society, or depleting natural resources. In the accounting sense, this means planning for the future by making annual financial investments that seek to minimize the total life cycle cost of a WRRF across its full life and avoid deferring costs and negative effects to future generations. The concept of sustainability has also expanded to include indirect effects to the greater community, and consider local industry partnerships and social justice issues. Optimizing the sustainability of a WRRF requires