

SUSTAINABILITY AND ENERGY MANAGEMENT

FOR WATER RESOURCE
RECOVERY FACILITIES

SUSTAINABILITY AND ENERGY MANAGEMENT FOR WATER RESOURCE RECOVERY FACILITIES

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Contents

List of Tables	ix
List of Figures	ix
1.0 INTRODUCTION	1
2.0 SUSTAINABILITY FRAMEWORKS	3
2.1 U.S. Environmental Protection Agency Climate Ready Water Utilities Initiative	5
2.2 Envision	6
2.3 Leadership in Energy and Environmental Design	6
2.4 American Society for Testing and Materials	8
2.5 Customized Frameworks for Environmental and Energy Management Systems	9
2.5.1 ISO 14001: Environmental Management Systems	9
2.5.2 ISO 50001: Energy Management Systems	11
2.6 Projects Seeking Awards Under Multiple Frameworks	11
3.0 PRACTICAL APPLICATION	12
3.1 Planning Phase	12
3.1.1 Goal Setting	12
3.1.1.1 Goal Setting Tools	13
3.1.1.1.1 Policy Directives	13
3.1.1.1.2 Benchmarking and Gap Analysis	13
3.1.1.1.3 Energy Audits	15
3.1.1.1.4 Eco-Charrettes	20
3.1.1.2 Sample Set of Sustainability-Oriented Goals and Objectives	21
3.1.2 Siting Decisions	22
3.1.3 Community Integration	22
3.1.4 Opportunity Components	23
3.2 Preliminary Design Phase	24

3.2.1	<i>Integrated Design for Sustainability</i>	24
3.2.2	<i>Technology Selections</i>	25
3.2.2.1	<i>Energy Conserving Technologies</i>	25
3.2.2.2	<i>Energy Producing Technologies</i>	29
3.2.2.3	<i>Key Factors in Selecting Technologies and Preferred Alternatives</i>	30
3.3	<i>Final Design Phase</i>	31
3.3.1	<i>Energy Modeling</i>	32
3.3.2	<i>Greenhouse Gas Modeling</i>	33
3.3.3	<i>Life Cycle Costing</i>	38
3.3.4	<i>Equipment Selection</i>	38
3.3.4.1	<i>Energy Management Information Systems</i>	38
3.3.4.2	<i>Pumping</i>	39
3.3.4.3	<i>Aeration</i>	40
3.3.4.4	<i>Solids Handling</i>	40
3.3.4.5	<i>Ultraviolet Disinfection</i>	41
3.3.5	<i>Materials Selection</i>	42
3.3.5.1	<i>Durability and Reliability</i>	42
3.3.5.2	<i>Content and Production</i>	42
3.3.5.3	<i>Sustainable Sourcing</i>	44
3.3.5.4	<i>End of Life Considerations</i>	44
3.3.6	<i>Future Proofing</i>	45
3.3.6.1	<i>Regulatory Change</i>	45
3.3.6.2	<i>Resilience to Climate Change</i>	45
3.3.6.3	<i>Technology Migration Pathways</i>	45
3.3.7	<i>Other Sustainability Considerations During Final Design</i>	46
3.4	<i>Bidding Phase</i>	47
3.4.1	<i>Financing Energy and Sustainability Projects</i>	48
3.4.2	<i>Emphasizing Sustainability and Energy Management for Competitive Bid Procurement</i>	50
3.5	<i>Construction Phase</i>	50
3.6	<i>Operations and Maintenance Phase</i>	52
4.0	REFERENCES	53
5.0	SUGGESTED READINGS	56

List of Tables

1	Summary of sustainability frameworks	4
2	Summary of relevant ASTM standards.	8
3	On-site energy production unit estimates	16
4	GHG modeling protocols by treatment process	37

List of Figures

1	Environmental management system cycle of continuous improvement	10
2	Alternatives development, evaluation, and selection process . . .	12
3	Benchmarking by facility type and flow	15
4	Sankey diagram 1.	34
5	Sankey diagram 2.	35

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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