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## SUSTAINABLE WASTEWATER INFRASTRUCTURE OF THE FUTURE (SWIFt)

The **Better Buildings Initiative** is a national leadership initiative calling on state and local officials, corporate chief executive officers, university presidents, utilities, and other leaders to make substantial commitments to improve the energy efficiency of their buildings and plants, save money, and increase competitiveness. The cornerstones are a commitment to a 20% or more savings target across the organizations' portfolios and a commitment to share strategies that work, substantiated by energy data across the portfolios. The U.S. Department of Energy (DOE) is expanding this initiative to engage leaders in a set of **Better Buildings Accelerators** designed to demonstrate specific innovative approaches, which upon successful demonstration will accelerate investment in energy efficiency.

The **Sustainable Wastewater Infrastructure of the Future Accelerator (SWIFt)** will work over three years with state, regional, and local agencies that are engaging with water resource recovery facilities in their jurisdiction to accelerate a pathway toward a sustainable infrastructure. This DOE initiative will build upon and leverage a substantial portfolio of work, resources and partnerships established by the U.S. Environmental Protection Agency (EPA) and various industry partners to add a new set of partners focused on developing actions and solutions in the energy-water nexus. DOE recognizes EPA's Office of Wastewater Management (OWM) leadership and will coordinate with EPA and this growing coalition on approaches to assist Accelerator partners chart pathways to sustainability.

The Accelerator aims to catalyze the adoption of innovative and best-practice approaches in data management, technologies, and financing for infrastructure improvement. SWIFt Partners will seek to improve the energy efficiency of their participating water resource recovery facilities by at least 30 percent and ideally integrate at least one resource recovery measure. Partner solutions will provide model plans and road-tested examples that other water resource recovery facilities can follow on their path to a sustainable wastewater infrastructure.

### Goals of SWIFt

- ▶ Demonstrate best-practice/cutting-edge approaches and tools toward a sustainable wastewater infrastructure and yield road-tested examples for other facilities
- ▶ Document model plans for transitioning to a sustainable infrastructure that will help drive more solutions in the industry
- ▶ Develop assessment and decision tools for selecting best-practice approaches and tools on the pathway toward a sustainable infrastructure
- ▶ Develop recommendations for post-Accelerator next steps

### Why Reducing Energy in Water Resource Recovery Facilities is Important

Wastewater contains about five times more energy than is needed for its treatment,<sup>1</sup> resulting in a total annual energy use by municipal wastewater treatment systems in the U.S. of approximately 30 billion kWh.<sup>2</sup> Energy operations are typically the largest consumers in a community, and reductions in energy usage can yield significant environmental, economic, and social benefits for these communities. The energy use of these systems is expected to increase by up to 20 percent in the coming decades due to more stringent water quality standards and growing water demand based on population growth.<sup>3</sup>

In recent years a growing number of utilities responsible for clean water have been moving from strict wastewater treatment to water resource management, some formally renaming themselves water resource recovery facilities. Energy efficiency in equipment, processes, and operations is a fundamental part of this transition, and energy savings in facility retrofits can reach 50 percent. Facilities can expand this energy-efficient foundation with resource recovery measures to move closer to a sustainable wastewater infrastructure. DOE will help accelerate their movement toward this goal.

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## Benefits to Accelerator Partners:

### ▶ Tools and Resources

Access tools, resources, and options for measuring results, operationalizing efficiency and sustainability goals, and funding transition to a sustainable wastewater infrastructure.

### ▶ Technical Expertise

Access and leverage technical expertise developed in DOE technology offices, EPA, and other organizations. The sources and analysis available from these organizations will support assessment of technical options and how to package them on the path to a sustainable infrastructure.

### ▶ Model Solutions

Collaborate with industry peers and stakeholders to create model solutions for technical and financing needs on the path to a sustainable infrastructure.

### ▶ National Recognition

Receive national recognition from DOE for demonstrating commitment to pursuing a pathway to a sustainable infrastructure, developing road-tested examples for other water resource recovery facilities to use, and raising the visibility of efficiency and sustainability efforts with employees, community, and stakeholders.

## Accelerator Partner Agrees To:

- ▶ **Recruit** one or more water resource recovery facilities in the jurisdiction that are committed to reducing their energy consumption, as measured by overall energy intensity, by 30 percent; and provide a point of contact at each
- ▶ **Participate** in peer exchange and technical assistance forums about tools, approaches, technologies, and options
- ▶ **Develop** a baseline energy consumption within six months
- ▶ **Demonstrate** at least a five-percent energy savings in each facility by applying low- or no-cost energy conservation measures; in at least one of the facilities, implement one or more measures included in the final plan within 12-18 months of the end of the Accelerator
- ▶ **Assist** each participating facility in the development of an infrastructure improvement plan that includes best-practice energy performance tracking, a package of cutting-edge technologies with a focus on resource recovery, and a concrete financing model
- ▶ **Share** results and lessons learned with DOE and other Accelerator partners. DOE, in turn, will share these results with EPA and industry associations

## For Additional Information, Visit:

- ▶ **U.S. Environmental Protection Agency**  
[www.epa.gov/aboutepa/about-office-water#wastewater](http://www.epa.gov/aboutepa/about-office-water#wastewater)

## The U.S. Department of Energy Agrees To:

- ▶ **Appoint** a point of contact
- ▶ **Provide technical assistance** and training about energy data management, tools, approaches, technologies, and options
- ▶ **Develop** additional technical tools and/or assistance necessary to meet the goals of the Accelerator
- ▶ **Create and facilitate** networking and technical peer exchange opportunities with stakeholder organizations and other partners to develop best practices and share innovative solutions
- ▶ **Leverage** full set of tools and resources developed by stakeholder organizations and compile best practices and approaches for striving toward sustainable infrastructure
- ▶ **Provide national recognition** to Accelerator partners and participating facilities for achieving milestones and for their leadership in working toward a sustainable wastewater infrastructure

- ▶ **Water Environment Federation**  
[www.wef.org](http://www.wef.org)

1. NACWA, WEF, and WERF. Towards Energy Neutrality at WRRFs – Results and Findings of Recent Research. April 2, 2014. Page 5.

2. EPRI and Water Research Foundation. Electricity Use and Management in the Municipal Water Supply and Wastewater Industries. November 2013. Page ix.

3. Ibid. Page ix.