Water-Energy Nexus

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U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Energy Savings Performance Contracting

For the Wastewater Sector

Alice G. Dasek

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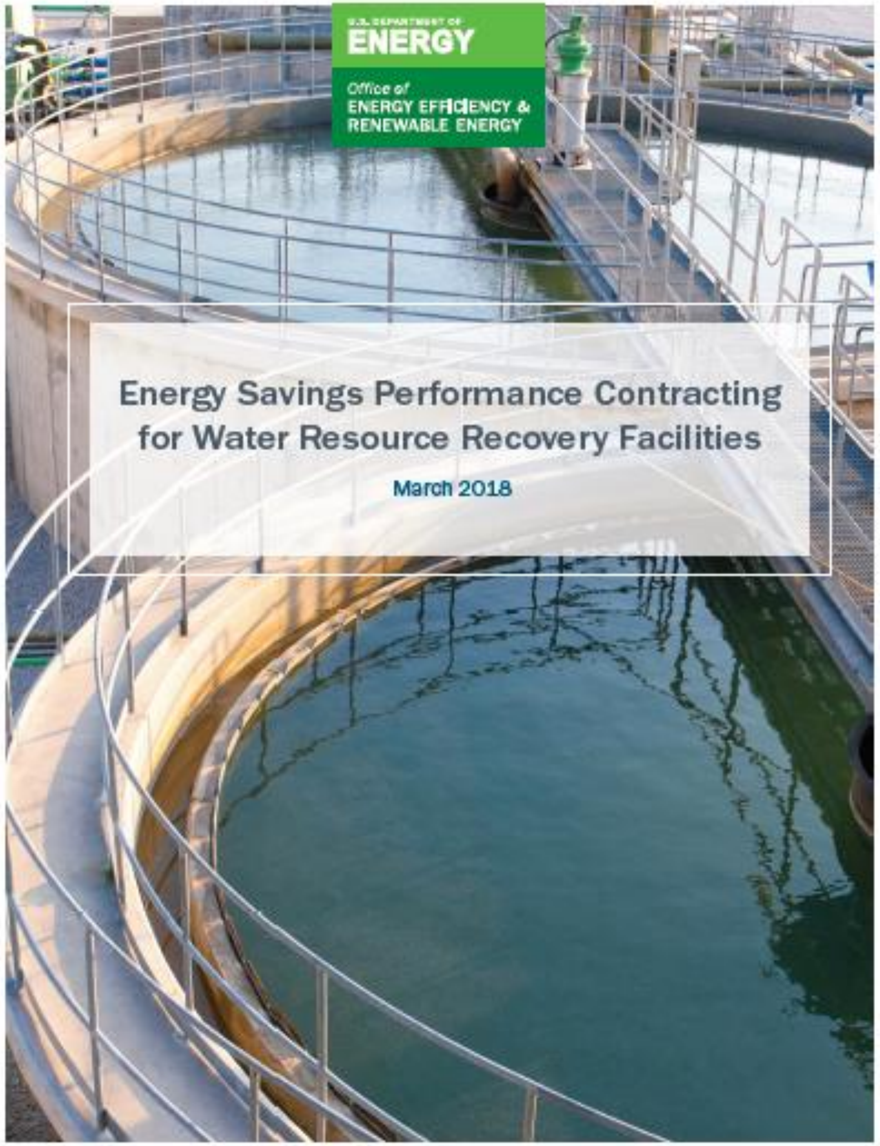
Introduction

- Released in March 2018
- Explores how ESPC can help facilities achieve priorities for the wastewater market
- One of a series of guides for markets underserved by ESPC



Overview

- What is Energy Savings Performance Contracting (ESPC)?
- Why ESPC?
- A Look at the ESPC Market
- ESPC Wastewater Case Studies
- DOE Resources for the Wastewater Sector

What is ESPC?

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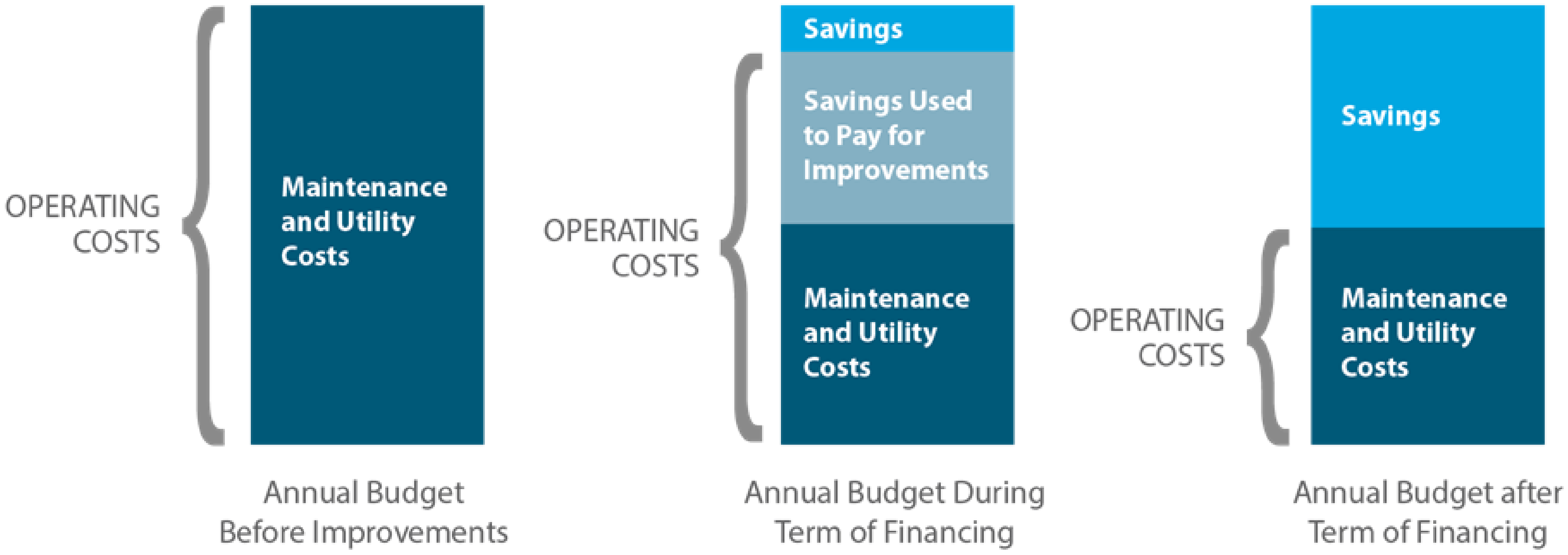
Definition

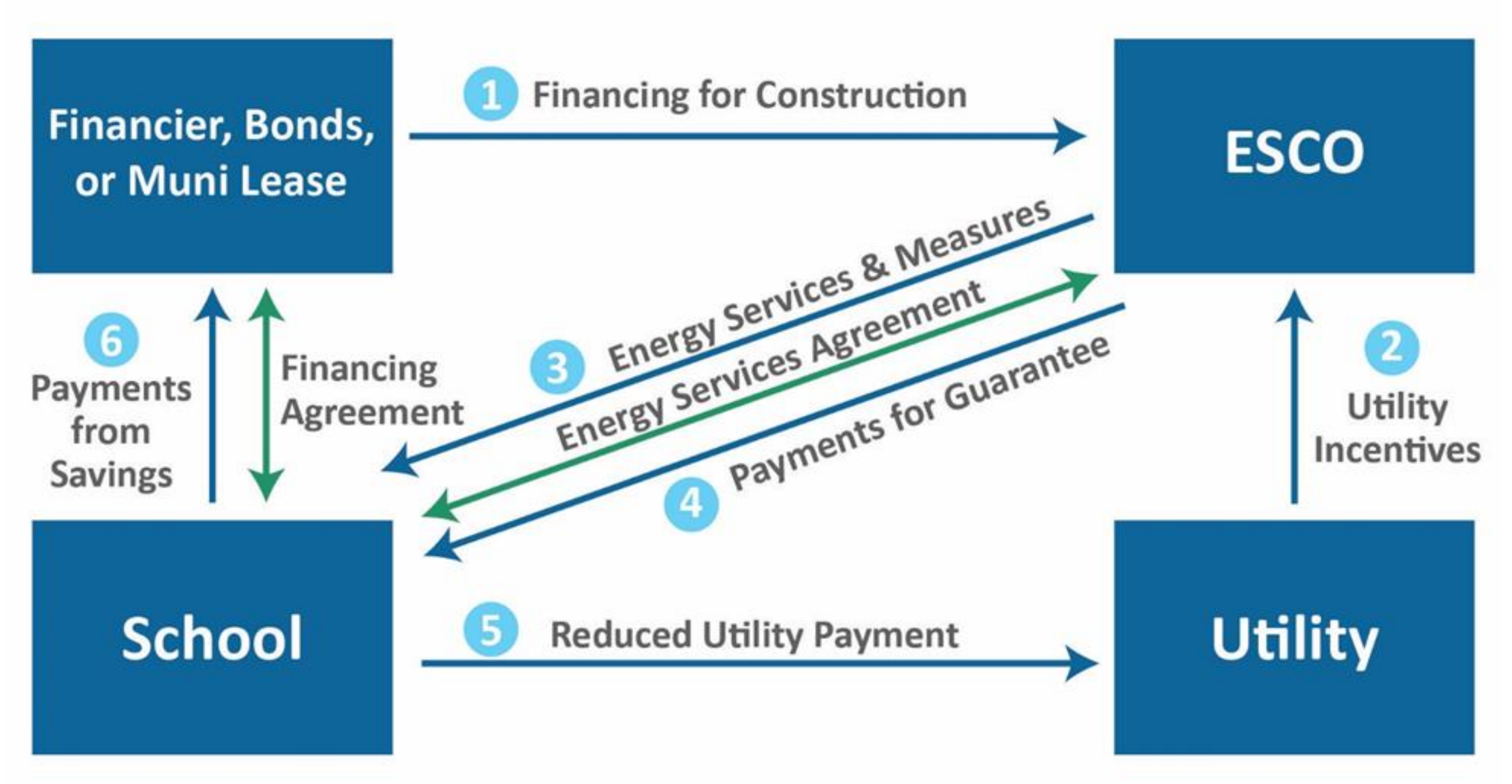
ESPC is

A contracting and financing method that provides upfront financing for energy efficiency projects and repaid by the savings on utility bills resulting from the upgrades

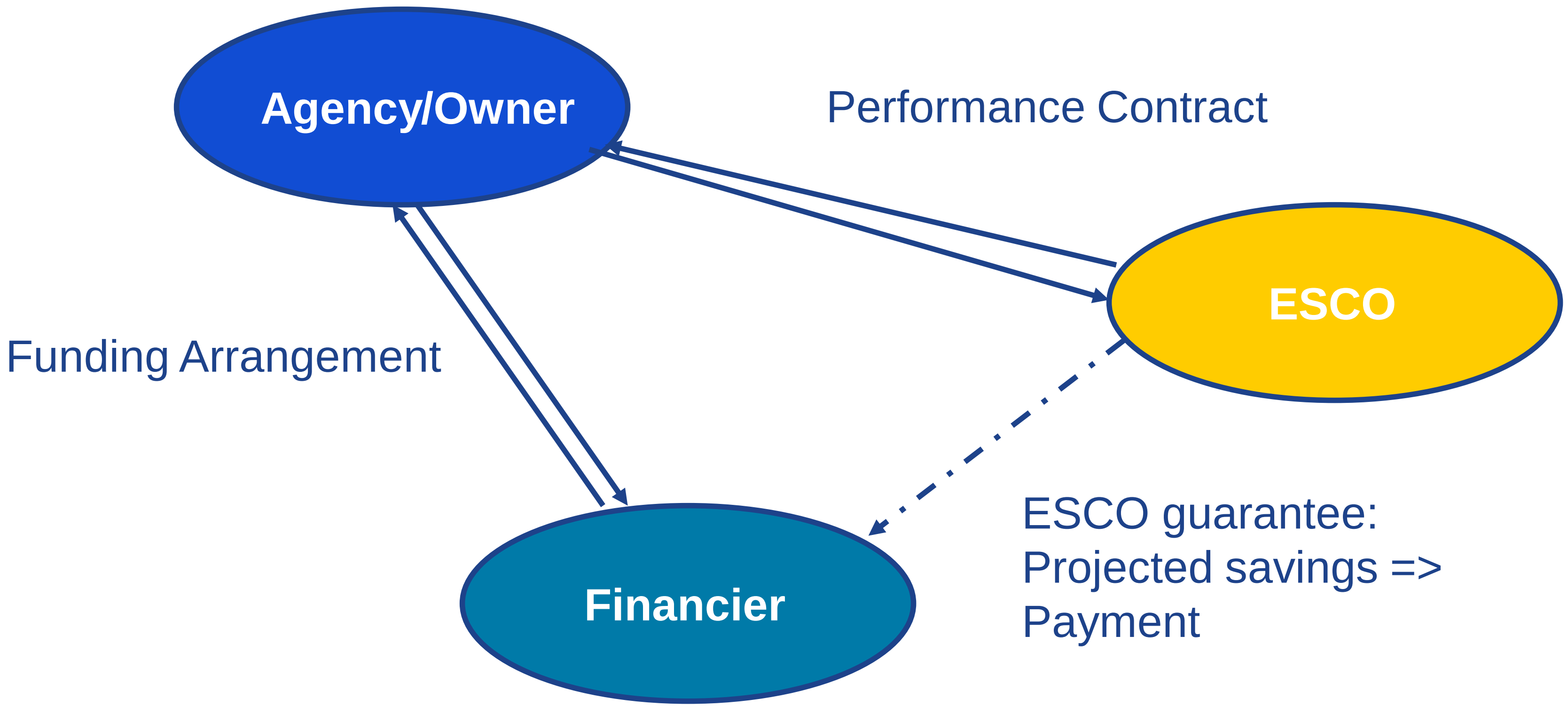
How Does it Work in Practice?



ESPC Relationships



Financing Options



The Performance Guarantee

- Unique feature of ESPC

The ESCO:

- Assumes financial, operating, and performance risk
- Guarantees project savings
- Measures and verifies savings
- Provides reimbursement if guaranteed savings not met and/or fixes the problem at no additional cost

Why ESPC?

General ESPC Benefits

- No upfront costs needed
- ESCO accountable for project design, construction, and post-installation monitoring
- ESCO serves as single point of contact for project
- ESCO takes on project risks
- Guaranteed cost and energy savings
- Savings measured and verified as “real”

Opportunities for Wastewater Facilities

- Achieve Wastewater Sector Mission
- Upgrade Infrastructure
- Manage Energy Costs

Achieve Wastewater Sector Mission

Issue

- Increasingly stringent regulatory requirements
- Demand on facilities expected to grow 23% by 2032[1]
- Need for reliable service for customers through outages

Opportunity

- ESPC project upgrades can help plants meet NPDES discharge permit requirements
- Streamlined operations help meet the demand for clean water at reasonable user rates
- Generating energy onsite can support operations resiliency

[1] https://www.infrastructurereportcard.org/the-impact/explore-infographics/americas-infrastructure-grade/

Upgrade Infrastructure

Issue

- WRRFs built to meet supply, not efficiency
- Aging equipment costs more to operate & maintain
- Infrastructure rated a D+ and capital investment needs estimated at $271B[1] ($2.4B over next 20 years in MN[2])

Opportunity

- Comprehensive nature of ESPC projects allows upgrades that improve overall project operations
- Upgrades can ensure operational stability
- ESPC projects can provide upfront investment not readily available

[1] https://www.infrastructurereportcard.org/cat-item/wastewater/
[2] https://www.infrastructurereportcard.org/state-item/minnesota/

Manage Energy Costs

Issue

- 2000-2010 energy costs rose by ~80%[3] and are estimated to continue rising through 2040[4]
- Energy often second highest operating cost in WRRF
- WRRFs represent 30-40% of energy use in community

Opportunity

- Individual ESPC projects have demonstrated up to 50% energy savings
- ESPC project can reduce utility bills
- Equipment improvements can also reduce other operating & maintenance costs

[3] "Annual Energy Review 2011." (2012). US Energy Information Administration. DOE/EIA-0384(2011). September 2012. Page 72. http://www.eia.gov/totalenergy/data/annual/pdf/aer.pdf

[4] "Annual Energy Outlook 2013." (2013). US Energy Information Administration. DOE/EIA-0383(2013). April 2013. Page 97-98. http://www.eia.gov/outlooks/archive/aeo13/

A Look at the ESPC Market

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A Perfect Storm for ESPC

- Tight budgets for energy efficiency retrofits
- Good energy savings track record
  - ESPC projects active in 2012 saved 34 million TWh and 224 million MMBtu or approximately 1% of total US commercial building energy consumption[6]
  - A typical ESPC project in the MUSH market saves approximately 13% to 31% annually compared to its baseline consumption[7]
- High market growth potential for ESPC
  - Anticipated 2017 revenues of $7.6 billion, representing an average annual growth of 13% over the period 2015-2017[8]
  - Estimated ESPC project investment opportunity in MUSH market: ~$51.8-$86.8 billion[9]

[6] LBNL, 2015. "Estimating Customer Electricity and Fuel Savings From Projects Installed by the US ESCO Industry."
[7] LBNL/NAESCO database of ESCO projects

The Potential for ESPC in WRRFs

Market	2008 (n=29)	2011 (n=35)	2014 (n=43)
Federal Govt.	15.4%	21.4%	20.7%
State/Local Govt.	23.0%	24.0%	25.4%
K–12 Schools	22.4%	19.4%	23.5%
Univ./College	16.2%	13.7%	10.0%
Healthcare	6.3%	5.9%	5.9%
Housing/Other	9.4%	7.5%	6.6%
Commercial/Industrial	7.3%	8.1%	7.9%
TOTAL	100.0%	100.0%	100.0%

Source: "U.S. Energy Service Company Industry: Recent Market Trends." by Elizabeth Stuart, Peter H. Larsen, Juan Pablo Carvallo, Charles A. Goldman, and Donald Gilligan. October 2016. Appendix A. Page 48.

- State/local governments incur approximately 95% of the capital investments annually to maintain & improve the infrastructure
- ESPC can provide upfront project financing in the face of limited budgets
- Upgrades in WRRFs can achieve up to 50% energy savings

[8] "U.S. Energy Service Company Industry: Recent Market Trends." by Elizabeth Stuart, Peter H. Larsen, Juan Pablo Carvallo, Charles A. Goldman, and Donald Gilligan. October 2016. Page 18.

Note Regarding ESPC Legislation

- Most states have legislation enabling ESPC
- Individual states might have language addressing ESPC specifically for school districts
- Legislation may set requirements for procurement, allowable energy conservation measures, financing terms, structure of the guarantee, M&V, and budget streams
- Good practice to consult your General Counsel, the State Energy Office, and/or project facilitator

[9] "Current Size and Remaining Market Potential of the U.S. Energy Service Company Industry" by Elizabeth Stuart, Peter H. Larsen, Charles A. Goldman, and Donald Gilligan. September 2013. Page 37.
[10] Ibid, Page A-4.

What's Holding Back the ESPC Market

Frequent barriers to broad use of ESPC expressed by MUSH market:

- Complicated and time-consuming procurement process
- Hard-to-access data on existing projects
- Inadequate data to make business case for ESPC
- Insufficient knowledge about mechanism details
- Inexperience in using ESPC in certain market sectors

[11] Ibid, Page A-6, A-5.

ESPC Case Studies for Wastewater Facilities

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City of Riverbank, CA

- Small city – population 23,000
- Focus on infrastructure stability and product quality
- $3.9 million in energy improvements
  - Upgraded to fine-bubble aeration system
  - Variable Frequency Drives (VFDs)
  - Filters, valves, gauges, control panels
- $200,000 annual savings

Hutchinson Wastewater Facility, MN

- Small city – population 14,000
- Capacity 3.5 MGD/day
- Focus on infrastructure stability
- $375,000 in energy improvements
  - Variable Frequency Drives (VFDs)
  - Lighting
  - Reduced maintenance needs
- Post-project motors can run at 30-35% capacity
- $60,000 annual savings (almost twice the guarantee)

Back River Wastewater Treatment Plant

City of Baltimore, MD

- Service population 1.3 million
- Uses anaerobic digesters
- Goal to use all of methane gas
- $14 million in energy improvements
  - New Combined Heat & Power (CHP) Plant
  - Replaced boilers and chillers equipped to run on methane gas
  - Replaced lighting
  - Replaced electric motors
- Payback period of 15 years
- Methane supply projected to generate 2.4MW of electricity, providing 20% of plant's needs; CHP plant can expand as needed

DOE Resources for Wastewater Facilities

U.S. DEPARTMENT OF ENERGY

ESPC Accelerator Toolkit

https://betterbuildingssolutioncenter.energy.gov/energy-savings-performance-contracting-espc-toolkit

- The ESPC project process
  - Model contract documents, ESPC project database, financing decision tree, online guide to implementing ESPC, best practices for selecting energy service company
- The ESPC institutional infrastructure
  - Resources for developing ESPC project champions and for building support network for ESPC across jurisdiction, fact sheet on economic impact analysis tools, ESPC vs. Design-Bid-Build, guide for establishing ESPC technical assistance program
- Application of ESPC to new markets
  - Guide to ESPC in the wastewater sector

DOE Resources for Wastewater

- Better Plants
- Superior Energy Performance (SEP) Program
- ISO 50 001 Ready
- Industrial Assessment Centers (IACs)
- CHP Deployment Program
- CHP Technical Assistance Partnerships (CHP TAPs)
- CHP for Resiliency Accelerator
- **Sustainable Wastewater Infrastructure of the Future (SWIFt) Accelerator**

SWIFt Goals & Structure

Goals

- 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

Structure

- **Phase 1:** Energy Data Management
- **Phase 2:** Measure Planning & Implementation
- **Phase 3:** Project Financing
- **Phase 4:** Plan Drafting

Energy Data Management Resources

- Published 2017
- Explains the energy data management process, provides step-by-step approach, and provides data tool comparison matrix

SWIFt: Data Tool Comparison Matrix

	Tool interface and entering data	# of Months of data needed	Data needed to use the tool	What metrics does the tool calculate?	Internet needed?	Facility size/type requirements	Other features of the tool	Technical assistance available for the tool	Compatibility with other data tracking tool(s)?
Portfolio Manager - EPA https://portfoliomanager.energystar.gov/pm/signup	Online tool to measure and track energy and water consumption and greenhouse gas emissions. Upload from Excel or enter data manually	24 months	1) Property information (sq. ft.) 2) Monthly energy data (kWh, therms) 3) Monthly flow data (gpd, MGD) 4) Plant annual average of influent and effluent BOD (mg/l) 5) Plant design flow rate (MGD) 6) Plant features- trickle filter, nutrient removal, onsite generation	• Energy use intensity per flow (kBtu/MGD) • Greenhouse gas emission intensity (kg CO2e/ gpd) • Avoided GHG emissions	Yes	All types/sizes, but ENERGY STAR score only for facilities > 0.6 mgd	• Can be used to manage different property types (e.g., buildings) within the same portfolio. • Data request templates can be used to request data from multiple facilities • Weather- normalized values based on 30-year average temperature • Nutrient removal indicated as Y/N in profile factored into ENERGY STAR score	Online Resources	Compatible with most tools
Energy Assessment Tool (EAT) - EPA Region 4 https://www3.epa.gov/region9/waterinfrastructure/audit.html	Downloadable Excel-based tool to assess individual baseline energy use and costs through utility bill and equipment analysis	24 months	1) Date & monthly flow (DMR data) 2) kWh monthly usage and monthly costs (kW demand optional) 3) Monthly gas usage and bill ccf or therms/ $	• KWH/MG • Cost/MG • kWh/ MG treated	No	All types/ Small-medium sizes (up to 5 electric meters per facility)	• Accommodates biogas and solar • Designed for 5 years; needs tweaking to accommodate longer timeframes	Region 4 experts	PM and EnPI tool
New Hampshire spreadsheet tool (not publicly available)	Customized by State of NH, this Excel spreadsheet- based tool requires manual entry of energy data.	24 months	1) Design flow (MGD) 2) Annual average daily flow (MGD) 3) Annual average energy usage (kWh) 4) Nutrient limit types 5) Annual average daily BOD removed	• kWh/ lb BOD removed • kWh/ MG treated	No	All types/sizes	Suitable for both portfolio and individual facility use	N/A	Compatible with most tools
Energy Performance Indicator (EnPI) - DOE https://ecenter.ee.doe.gov/EM/tools/Pages/EnPI.aspx	Downloadable add-in for Excel. Upload data from external spreadsheet or enter data manually through step-by-step wizard	24 months	1) Monthly or weekly energy consumption data 2) Monthly or weekly production data (metric tons, million gallons of flow, BOD, COD etc.) 3) Weather data - Heating Degree Days (HDDs), Cooling Degree Days (CDDs), humidity, monthly rain, average temperature, etc.	• kWh/ lb BOD removed • kWh/ MG treated • COD mg/L • Avoided GHG emissions	No	All types/sizes	• Regression analysis (forecast, backcast, and chaining) for improved accuracy • Can be used by both individual facilities and portfolios (corporate roll-up functionality) • Tool updated bi-annually (optional download)	Online Resources	Compatible with most tools
Qualified Energy Savings Tool (QEST) Tool- DOE (Expected to be available Feb-March 2017)	An online tool you can use to track and analyze energy use and greenhouse gas emissions. Internet needed. Standard regression analysis vs. customized as in EnPI.								

Energy Data Management Manual for the Wastewater Treatment Sector

DECEMBER 2017

DOE/EE-1700

https://www.energy.gov/sites/prod/files/2018/01/f46/WastewaterTreatmentDataGuide_Final_0118.pdf

Assessments & Low- and No-Cost Measures

Photo courtesy of Dennis Clough, Energy Systems Group

Source: energy.gov

Better Buildings

U.S. DEPARTMENT OF ENERGY

Sustainable Wastewater Infrastructure of the Future (SWIFt)

LOW- AND NO-COST MEASURES LIST

These measures were recommended by U.S. DOE Industrial Assessment Centers and implemented at various water resource recovery facilities, averaging ≤ 2 year payback periods.

Installation

- ☐ Install timers on light switches and occupancy sensors in little-used areas and adjust for scheduled operations as needed.
- ☐ Install programmable thermostats and use night set-back/setup settings.
- ☐ Turn off unnecessary lighting and install occupancy sensors.
- ☐ Identify and use energy-efficient belts compatible with your facility's equipment.
- ☐ Change aeration blower intake filters regularly to minimize air intake resistance. [1]
- ☐ Use automatic controls when available to optimize equipment, process monitoring, and operations.

Assessment

- ☐ Review and assess ventilation requirements to optimize efficiency, reduce space conditioning during non-working hours, and manage space conditioning energy use during non-occupancy times.
- ☐ Assess the potential to remove organics prior to entering the secondary treatment system. Assess the capability for high strength organic dischargers to feed directly to an anaerobic digester.
- ☐ Review operations to identify any pumps or blowers that are being throttled and assess them to determine if they can be adjusted to operate more efficiently.
- ☐ Assess air and water piping systems in need of insulation (exposed piping).
- ☐ Identify equipment speeds and resheave blowers where needed.
- ☐ Consult your energy utility account manager to evaluate rate schedules and determine the most efficient rate for your facility.

Operation

- ☐ Test, calibrate, and maintain dissolved oxygen level/sensors in aeration tank(s). [2]
- ☐ Shift to smaller HP pumps/blowers during nightly low-flow periods or seasonal low-flow periods, if applicable. [3]
- ☐ Reduce blower pressure to the minimum required through proper maintenance of aeration diffusers and distribution system to minimize head loss. Control the set point in the aeration blower control strategy. Also, identify, assess and repair aeration system air main leaks - (replace gasket, repair corrosion, underground maintenance) and lower aeration tank levels to reduce air header static pressure, if applicable. (May need sensing O2 level).
- ☐ Turn off equipment when not in use (e.g., turn off aerobic digester blower periodically or operate intermittently).
- ☐ Adjust system operations when there is a change in wastewater load.
- ☐ Raise wet well levels to reduce static head in the pump system. Coordinate all control points (low-level alarm, pump start/stop, high-level alarm) to adjust the wet well level upward. Consider hydraulic profile of the facility when doing so.
- ☐ Eliminate leaks in inert gas and compressed air lines/valves.
- ☐ Operate select aeration tanks as needed while also establishing operating protocols to enable the plant to bring tanks back on line efficiently.
- ☐ Routinely clean UV lamp sleeves to enhance transfer efficiency and decrease the number of UV lamps where/when possible while still meeting disinfection needs.
- ☐ Idle aeration basins/zones, if not needed (periodic maintenance may still be needed).
- ☐ Reschedule plant operations or reduce load to avoid on-peak hours (e.g., operate dewatering equipment during off-peak, load digesters during off-peak, repair equipment, and shift recycling of supernatant to off-peak).

[1] Use static pressure to check if filters need replacement.
[2] Requires emptying tanks. Otherwise, payback can be much shorter.
[3] Must have more than sporadic (significantly frequent) nightly low-flow periods.

December 2018

Measure Planning

23 measures across 4 categories

Technologies
- Blower Technologies + Optimization
- Dissolved Oxygen (DO) Control
- Emerging Diffuser Technologies
- Membrane Bioreactors (MBR)
- Pumping System Technologies + Optimization
- Pure Oxygen (Pure Ox) Systems
- Solar Photovoltaic (PV)
- Ultraviolet (UV) Disinfection Systems

Process Improvements
- Ammonia-based Aeration Control (ABAC)
- Blower Optimization *(w/ Technologies)*
- Chemically-Enhanced Primary Treatment (CEPT)
- Dissolved Oxygen (DO) Control *(w/ Technologies)*
- Modifying System Operations Seasonally
- Pumping System Optimization *(w/ Technologies*

Management Approaches
- Energy Assessment
- Energy Conservation Programs
- Energy Management Systems
- Infiltration/Inflow (I/I) Studies
- Rate Structure Management
- Real-time Monitoring & Control

Resource Recovery
- Anaerobic Digestion
- Biosolids Energy Recovery
- Combined Heat & Power (CHP)
- Heat Recovery
- Inline Hydropower
- Onsite Water Reuse

Measure Planning Workbooks

Blower Technologies + Optimization Market Landscape DRAFT - FOR DISCUSSION ONLY

Goal: To help a wastewater treatment facility determine if it should install and/or optimize blower technologies

Score Range (1 = lowest/worst, 4 = highest/best) (Range independent for each criterion)

Preparation

Criteria	1	2	3	4	Scoring notes
What is the potential environmental/permit impact?	No Impact	A reduction in monthly average concentration for one permitted parameter (e.g., BOD)	A reduction in monthly average concentration for two permitted parameters (e.g., BOD, TSS)	A reduction in monthly average concentration for three permitted parameters (e.g., BOD, TSS, NH_3)	Blower technology optimization with more operational benefits equals higher score, benefit depends on variability in influent water quality and existing control strategies at the treatment plant
What is the turn-down capacity for the blower system (including jockey blowers)?	Overall blower system turn-down 1.1:1 or less (>90%)	Overall blower system turn-down 1.1:1 to 2:1 (50% to 90%)	Overall blower system turn-down 2:1 to 4:1 (25% to 50%)	Overall blower system turn-down 4:1 to 8:1 (12.5% to 25%)	Higher turn-down ability equals higher score (e.g., 4:1 turndown is a reduction from 100% to 25%)

Installation

Criteria	1	2	3	4	Scoring notes
What is the purchase price of blower equipment?*	>$500K per blower	$300K - $500K per blower	$100K - $300K per blower	<$100K per blower	All else equal, lower cost equals higher score, cost depends on the existing system components and control software

Ongoing Operations

Criteria	1	2	3	4	Scoring notes
What level of effort is needed to operate and maintain blower technologies and their control system?^	Requires operator to make frequent manual adjustments; high repair costs; professional maintenance necessary; complex proprietary controls system requiring expert contractor support	Requires operator to make manual adjustments occasionally; Several regular maintenance items to maintain operation (e.g., bearings, seals, electronic components)	Relies on some operator tweaks for effective operation; medium level of maintenance that can be performed by plant personnel	Simple/automated operation; minimal maintenance requirements that can be performed by plant personnel; mean time between overhauls typically 5 to 10 years	Lower level of effort equals higher score

Potential Benefits

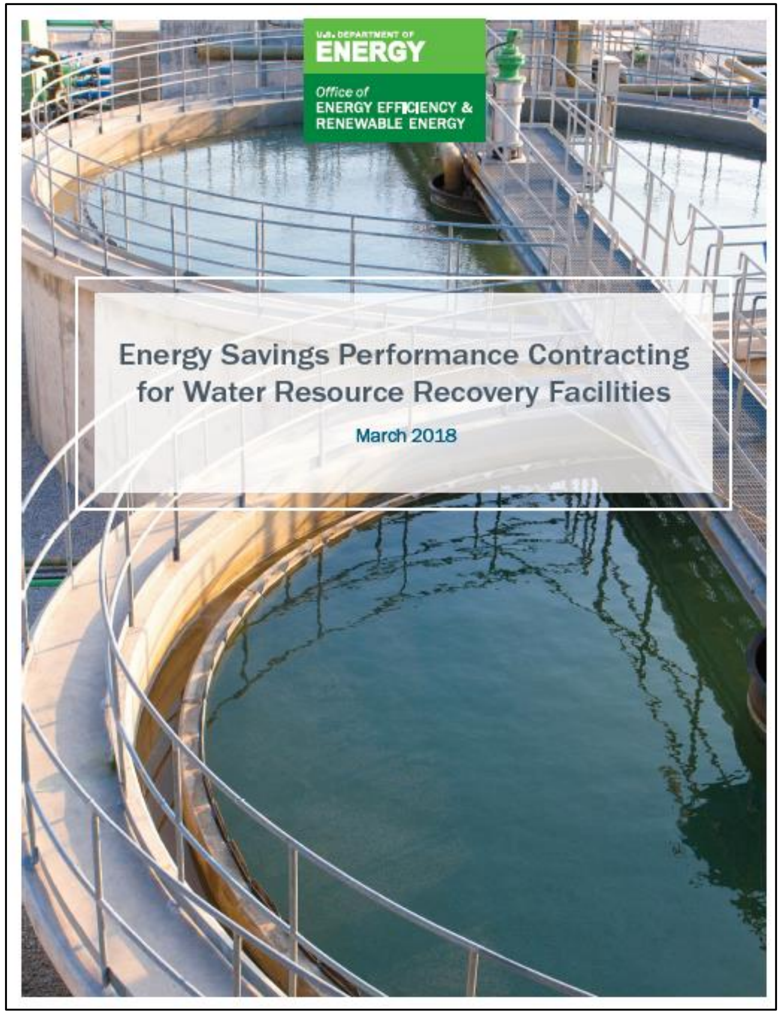
Criteria	1	2	3	4	Scoring notes
What facility-wide energy savings are expected?	<10%	10 - 20%	20 - 30%	>30%	Higher savings equals higher score
What will be the payback period?	>10 years	7 - 10 years	3 - 7 years	<3 years	Shorter payback period equals higher score

Project Financing Comparison Matrix

SWIFt: Project Financing Comparison Matrix

Financing Source (website)	Funding Details (size, terms, interest, etc.)	Eligible Recipients	Eligible Activities	Application/ Execution Timeline	Application Requirements	TA support available	Combine with other funding? Leverage incentives?
U.S. EPA Water Infrastructure Finance and Innovation Act (WIFIA) Program https://www.epa.gov/wifia	**Loan Size:** Min. project size $20 M for large communities and $5 M for small communities (population of 25,000 or less) **Interest rate / Fees:** Interest rate pegged to U.S. Treasury securities (currently 2.85% on 30-year maturity). Application fee ($25k-$100k) and a credit processing fee ($250k-$500k) apply. **Loan Term (length):** Max 35 years. **Other:** WIFIA can fund ≤49% of eligible project costs. Total federal assistance ≤80% of a project's eligible costs.	Local/state/tribal/and federal government entities; Partnerships and joint ventures; Corporations and trusts; Clean Water and Drinking Water State Revolving Fund (SRF) programs	Development phase activities; Construction, reconstruction, rehabilitation, and replacement activities; Acquisition of real property or an interest in real property, environmental mitigation, construction contingencies, and acquisition of equipment.	(1) Issuance of a Notice of Funding Availability; (2) Applicants submit letters of interest; (3) Selected projects invited to apply. Timeline is approximately 6 months.	Creditworthiness and dedicated source of revenue. Federal requirements and cross-cutter provisions apply.	No	Yes
U.S. HUD Community Development Block Grant (CDBG) Program https://www.hud.gov/program_offices/comm_planning/communitydevelopment/programs	**Grant Size:** Varies. **Loan Size:** No size limits (typically $500,000 to $140 M) **Interest rate / Fees:** Interest rate pegged to LIBO + markup (currently 2.79%). Fee is a percentage of the principal amount of the guaranteed loan (2.23% for FY2019) **Loan Term (length):** Max 20 years	**Entitlement Grant Program:** Entitlement cities; Other metropolitan cities ≥ 50k people; Qualified urban counties ≥ 200k people **State Grant Program:** Non-entitlement communities and governments **Loan:** Eligible recipients of the grant programs.	Activities that meet one of the national objectives for the program: (1) benefit low- and moderate-income persons, (2) prevent or eliminate slums or blight, or (3) address community development needs having a particular urgency. Eligible activities include energy conservation.	**Grant:** Determined by Entitlement Cities and States **Loan:** Determined by HUD Community Planning and Development field offices	Federal requirements and cross-cutter provisions apply.	Yes	Yes
USDA Rural Development Water & Waste Disposal Loan & Grant Program https://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program	**Grant Size:** Up to 75% or 45% of eligible project costs **Loan Size:** Based on repayment ability **Interest rate / Fees:** Three interest rates (2.5%, 3.375%, and 4.25% until June 30, 2019). No upfront fees for direct loan program. **Loan Term (length):** The useful life of the facility or 40 years	**Grant:** Limited to low-income communities, prioritizing smallest, most needy communities and those with health and compliance issues **Loan:** Not for profit entities, federally-recognized tribes, cities, towns and rural areas under 10,000 population	Eligible activities include, but are not limited to, acquisition, construction or improvement of drinking water sourcing, treatment, storage and distribution; sewer collection, transmission, treatment and disposal; stormwater collection, transmission and disposal	Rolling application cycle but the best time to apply is October-December	All federal financing must be used for a public purpose. Projects must be financially sustainable.	Yes	Yes
Clean Water State Revolving Fund (CWSRF) https://www.epa.gov/cwsrf	**Loan Size:** Project requirements determined by individual states. **Loan Term (length):** 30 years or the useful life of the project. **Interest rate / Fees:** Vary by loan and state (national weighted average interest rate in 2018 was 1.510%). **Grants:** States may use up to 30% of their CWSRF funding to provide grants (in the form of principal forgiveness, negative interest rate loans, or grants) **Other:** Other types of assistance are also available.	Municipalities, tribes, or intermunicipal, interstate, and state agencies; Nonprofit organizations and National Estuary Programs	There are 11 eligible project types including energy efficiency	Apply through state programs. States may accept applications on a rolling basis or according to an annual cycle.	The project must be on the state's priority list to be eligible to receive assistance. Federal requirements and cross-cutter provisions apply.	Yes	Yes
Energy Savings Performance Contracting (ESPC)							
Lease-Purchase Agreements							

Other Project Financing Resources



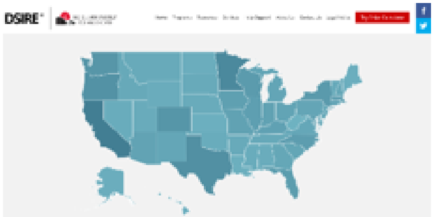
DOE's Better Buildings Financing Navigator
https://betterbuildingsinitiative.energy.gov/financing-navigator

Online tool helps public and private sector organizations identify the most appropriate financing solutions for their energy efficiency and renewable energy projects

EPA's Water Finance Clearinghouse
https://www.epa.gov/waterfinancecenter/water-finance-clearinghouse

Online portal designed to help communities locate potential funding sources. The portal consists of a searchable database of funding sources from federal, state, utility, nonprofit, and other public and private organizations. The portal enables users to apply several filter categories and search criteria to find the most relevant opportunities.

Database of State Incentives for Renewables & Efficiency (DSIRE)
http://www.dsireusa.org/



A searchable database of information on incentives and policies that support renewable energy and energy efficiency in the United States. Wastewater facilities can use this tool to identify financial incentives such as tax credits, rebates, bonds, loan guarantees, loans, and grants.

Thank You!

Questions?

For additional information, contact

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