

# Cost and Effectiveness Guidance State Revolving Fund



P.L. 113-121 Section 602 (b)(13) of the Water Resources Reform and Development Act (WRRDA), 2014 states:

- (13) beginning in fiscal year 2016, the State will require as a condition of providing assistance to a municipality or intermunicipal, interstate, or State agency that the recipient of such assistance certify, in a manner determined by the Governor of the State, that the recipient—*
- (A) has studied and evaluated the cost and effectiveness of the processes, materials, techniques, and technologies for carrying out the proposed project or activity for which assistance is sought under this title; and*
  - (B) has selected, to the maximum extent practicable, a project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation, and energy conservation, taking into account—*
    - (i) the cost of constructing the project or activity;*
    - (ii) the cost of operating and maintaining the project or activity over the life of the project or activity; and*
    - (iii) the cost of replacing the project or activity;*

The statute requires that a cost and effectiveness analysis involve, at a minimum:

- the study and evaluation of the cost and effectiveness of the processes, materials, techniques, and technologies for carrying out the proposed project or activity for which assistance is sought under this title; and
- the selection, to the maximum extent practicable, of a project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation, and energy conservation, taking into account—
  - the cost of constructing the project or activity;
  - the cost of operating and maintaining the project or activity over the life of the project or activity; and
  - the cost of replacing the project or activity.

EPA provided interpretive guidance for assistance with the cost and effectiveness requirement as provided in the attached Appendix I. The borrower must provide the Cost and Effectiveness Certification to meet this requirement.

# Interpretive Guidance for Certain Amendments in the Water Resources Reform and Development Act to Titles I, II, V, and VI of the Federal Water Pollution Control Act

## APPENDIX I

### Supplemental Information for Implementing Section 603(d)(1)(E)(i)(III)

Under Section 603(d)(1)(E)(i)(III) of the Federal Water Pollution Control Act, as amended, a recipient of a Clean Water State Revolving Fund (CWSRF) loan for “repair, replacement, or expansion” of a treatment works must certify that it has evaluated and will be implementing water and energy conservation efforts as part of its fiscal sustainability plan. As stated in *Interpretive Guidance for Certain Amendments in the Water Resources Reform and Development Act to Titles I, II, V and VI of the Federal Water Pollution Control Act*, the Environmental Protection Agency recommends that the CWSRFs evaluate whether a recipient has selected, to the maximum extent practicable, water and energy efficient approaches in the selected project.

#### Energy Conservation

One example of how CWSRFs can evaluate the energy portion of the certification is to use information developed by the recipient through energy assessments and audits. Energy assessments help utilities identify the amount of energy being used in various aspects of its operations. Energy audits, in turn, allow utilities to identify and prioritize projects that will result in operational and capital improvements to their infrastructure and operations, cost savings, and other climate-related benefits like reductions in greenhouse gas emissions and the use of renewable energy. EPA encourages CWSRFs to promote the use of these proven and objective methods by CWSRF borrowers.

#### Energy Use Assessments

A number of tools are available to help utilities conduct energy assessments, including:

- **EPA’s Energy Use Assessment Tool**—this is a free Excel-based tool that can be downloaded and is specifically designed for small and medium sized wastewater and water utilities. It enables utilities to analyze their current energy bills and analyze energy consumption for major pieces of equipment. It also allows the utility to develop a printable summary report outlining current energy consumption and costs, generate graphs depicting energy use over time, and highlight areas of potential improvement in energy efficiency. It is available at [http://water.epa.gov/infrastructure/sustain/energy\\_use.cfm](http://water.epa.gov/infrastructure/sustain/energy_use.cfm).
- **NYSERDA Energy Benchmarking Tool**—The New York State Energy Research and Development Agency (NYSERDA) has developed a tool to help wastewater utilities assess and benchmark their current energy usage, along with a number of other useful self-audit checklists, available at <http://www.nysenda.ny.gov/Energy-Efficiency-and-Renewable-Programs/Commercial-and-Industrial/Sectors/Municipal-Water-and-Wastewater.aspx>.

#### Energy Audits

Energy audits can be broadly characterized according to the following three levels:

- **Level 1 (Walk Through Audits)**
  - Generally last several hours at the facility
  - Usually result in suggestions for low cost improvements in areas like HVAC or lighting
- **Level 2 (Energy Survey and Analysis Audits)**
  - One or two days in duration, plus additional time to review energy bills, etc.
  - In addition to HVAC/lighting recommendations, usually result in recommendations for equipment upgrades in existing processes (e.g., variable frequency drives, more efficient motors, etc.)
- **Level 3 (Process Energy Audit)**
  - One or more days at the facility, time to analyze energy bills and pump curves, and time for additional data gathering
  - Audit covers energy use in both existing and alternative processes, potential design modifications, and optimization of processes and equipment
  - Audit suggestions covered detailed operational and process suggestions for both short-term and long-term payback periods as well as capital intensive projects that may require outside funding
  - Most likely to result in significant savings

EPA hosted a webinar in August 2014 describing a number of energy assessment and audit tools available to states and potential recipients of CWSRF funding. The webinar slides are available at <http://water.epa.gov/infrastructure/sustain/upload/NRWA-Energy-Audits-for-Small-Utilities-8-4-14.pdf>.

Tools available to help wastewater utilities obtain or conduct energy audits include:

- **EPA's Energy Use Assessment Tool** — described in more detail above. Available at [http://water.epa.gov/infrastructure/sustain/energy\\_use.cfm](http://water.epa.gov/infrastructure/sustain/energy_use.cfm)
- **EPRI Energy Audit Manual for Water and Wastewater Facilities** — available at [www.cee1.org/ind/mot-sys/ww/epri-audit.pdf](http://www.cee1.org/ind/mot-sys/ww/epri-audit.pdf)
- **Maine DEP Sample Audit RFP Language** — designed to help utilities obtain assistance for Level 3 Audits, available at [http://www.maine.gov/dep/water/grants/SRF/2014/model\\_energy\\_audit\\_rfp.pdf](http://www.maine.gov/dep/water/grants/SRF/2014/model_energy_audit_rfp.pdf)
- **The Center for Energy Efficiency (CEE) self-audit checklists** — available at [www.cee1.org/ind/mot-sys/ww/epri-audit.pdf](http://www.cee1.org/ind/mot-sys/ww/epri-audit.pdf)

Both energy assessments and audits are eligible for funding under the CWSRF, and a number of organizations can help utilities with these activities, including:

- State Energy Offices (<http://www.naseo.org/members-states>)
- Electric utilities serving wastewater utilities (<http://www.dsireusa.org/>)
- Technical assistance providers like the National Rural Water Association, RCAP, and others
- Department of Energy Industrial Assessment Centers (<http://energy.gov/eere/amo/industrial-assessment-centers-iacs>).

### Water Conservation

Water conservation includes efficiency and reuse efforts to not only conserve our raw water supply, but to also reduce flow to wastewater treatment plants. Therefore, one way CWSRF borrowers can fulfill the water conservation requirement is to consider alternative or complementary projects that result in reduced wastewater flows and therefore reduce a treatment works' capacity needs. There are a number of water conservation projects borrowers can consider, including:

- **Water Reuse** — recycling and water reuse projects that replace potable sources with nonpotable sources
  - Gray water, condensate, and wastewater effluent reuse systems
  - Extra treatment costs and distribution pipes associated with water reuse
- **Water Efficient Devices** — installing or retrofitting water efficient devices, such as plumbing fixtures and appliances
  - Shower heads, faucets, toilets, urinals, etc.
  - Education and incentive programs to conserve water such as rebates
- **Water Meters** — installing any type of water meter in a previously unmetered area, or replacing existing broken/malfunctioning water meters or upgrading them if rate structure is based on metered use
- **Water Audits and Conservation Plans** — performing audits of entire utilities or individual users (e.g., large corporations) to assess the amount of water being consumed, the need for retrofits, etc.

Utilities can also fulfill this requirement by considering water conservation projects that are not CWSRF eligible.

### Water Efficiency Tools

Tools are readily available to help utilities determine how much water is being conserved, including:

- **EPA's WaterSense Program** — Tools and resources to promote water efficiency are available at <http://www.epa.gov/watersense/>. States, local governments, and utilities can partner with WaterSense to get access to additional tools and resources to help them design and implement water efficiency and conservation programs. Partnership is free.

- **EPA's Water Conservation Plan Guidelines** – Helpful recommendations to utilities for creating and implementing a Water Conservation Plan, depending on the size of the population served by the utility, available at <http://epa.gov/watersense/pubs/guide.html>.
- **AWWA Water Audit Software** – Free software specifically designed to help utilities perform water audits, to help quantify and track water losses, and determine areas for improved efficiency. Available at <http://www.awwa.org/resources-tools/waterknowledge/water-loss-control.aspx>.
- **AWE Water Conservation Tracking Tool** – A tool to evaluate water savings, costs, and benefits of conservation programs for a specific water utility, available to AWE members at <http://www.allianceforwaterefficiency.org/tracking-tool.aspx>.
- Many states have guidelines and example plans to help utilities develop water conservation plans. For example:
  - **TWDB Water Conservation Plan** – Texas Water Development Board has developed a set of guidelines, tutorials, and example plans to help utilities create a water conservation plan that can be adopted and utilized by different entities. Available at <http://www.twdb.texas.gov/conservation/municipal/plans/>.