

American Recovery & Reinvestment Act

The Green Project Reserve

June 22, 2009

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The information included in this document serves to restate and correct guidance provided by the SRFs on March 2, 2009 (at http://www.epa.gov/water/eparecovery/docs/2009-03-02_Final_ARRA_SRF_Guidance.pdf). This document contains two sections (I.) guiding principles for developing a business case in order to assert that a project is eligible for the 20% Green Project Reserve (GPR), and (II.) questions and answers on whether or not projects are eligible for the 20% GPR.

[Please note: All CWSRF Q&A's have been removed from this document to allow for easier reading about DWSRF Q&A's. For the Q&A document in its entirety, go to the economic stimulus page at: www.epa.ohio.gov/ddagw/dwaf_economic_stimulus.aspx].

I. Principles and approach to developing a Business Case for water and energy efficiency projects

- A. Energy and water efficiency projects should demonstrate substantial benefits/savings compared to the existing equipment
- B. Water and energy efficiency benefits/savings must be a substantial part of the rationale or justification for the project, and cannot simply be incidental water and/or energy efficiency benefits
- C. Technical component of a business case: Using information from maintenance or operations records, engineering studies, project plans, etc.
 - 1. that identify problems (including any data on water and/or energy inefficiencies) in the existing facility
 - 2. that clarify the technical benefits from the project in water and/or energy efficiency terms
- D. Financial component of a business case:
 - 1. Estimate cost and water savings from the project based on the technical analysis of benefits.
 - 2. Determine, within total project costs, that savings associated with energy and water efficiency improvements comprise a substantial part of financial justification for project.

II. Questions & Answers on ARRA GPR (GPR)

1. Can the DWSRF fund water efficient fixtures?

Yes. Many water efficient projects identified in Tracy Mehan's memo (at http://www.epa.gov/safewater/dwsrf/pdfs/memo_dwsrf_policy_2003-07-25.pdf,

DWSRF 03-03, issued 7/25/03), such as the installation or retrofit of water efficient devices, are eligible for DWSRF loan assistance. Specific examples mentioned include plumbing fixtures and appliances.

2. What are examples of water efficient fixtures?

Water efficient fixtures include low flow shower heads, toilets, and other plumbing devices designed to use less water.

3. Does leak detection equipment qualify for the GPR?

Yes, in general. Leak detection equipment is categorically eligible for the GPR of both the CW and DW SRFs, unless it is associated primarily with a project that is ineligible under ARRA section 1604. See IV.A. 2. k. of ARRA SRF Guidance of March 2, 2009, (at http://www.epa.gov/water/eparecovery/docs/2009-03-02_Final_ARRA_SRF_Guidance.pdf).

4. Are water line replacement projects (i.e. replacing leaking pipes) eligible for the GPR?

Some water line replacement projects may be considered eligible under the GPR if they make a sufficient business case for their efficiency benefits. This business case should provide specific data documenting water loss (at minimum, system-wide, or more localized data if available), should identify the length, C-values, pipe material, diameter, and provide a general description of position within system, of pipes being rehabilitated/replaced, and should document that the pipes to be replaced are the primary source of water loss (if such data is available). At minimum, the business case should provide specific information on the basis for rehabilitation/replacement of the pipes covered in the project, such as pipe age and type, and any relevant break repair or other maintenance records. This information should give a reasonable basis to expect that the pipes proposed for replacement are likely to generate the largest return in leak reduction for the size of the project. Thus, a pipe replacement project based essentially on useful life assessments, without more, would not be eligible. Finally, if energy efficiency is relevant to project qualification as “green”, the business case should provide any available documentation regarding expected increases in energy efficiency. As explained in Attachments to EPA’s ARRA Guidance (at http://www.epa.gov/water/eparecovery/docs/2009-03-02_Final_ARRA_SRF_Guidance.pdf), for such traditional projects as pipe replacement, the state will have to document the business case in the project file to demonstrate the substantial (not incidental) water or energy efficiency benefits of the project in order to qualify the project or eligible portion to use GPR funding.

5. Are all projects to install water meters categorically green?

A project for the installation of water meters in an area with previously unmetered connections in a water system is categorically green, with the simple caveat that such projects would also need to include a commitment by the PWS to bill a metered rate based on consumption. This may appear to be unnecessary to

specify, as ordinarily utilities would have little incentive to pay for meters and then obtain no water conservation or revenue benefits from them. It is restated here because EPA has received inquiries on this question, and as it is in fact an operating precondition to obtaining water supply benefits from meters, 100% grant funding of projects is permitted in ARRA, and because the green reserve and the 12 month contract deadlines are new requirements in the SRF programs.

A project that proposes to replace existing water meters with newer water meters is not categorically green, and a business case is required to identify and document briefly any water and/or energy efficiency improvements from such replacement. Because a metered system would have already seen its water conservation benefits, installing new water meters would not affect the water efficiency of the system, unless the system can demonstrate that the existing water meters are substantially malfunctioning as part of a business case. Projects to replace existing water meters with automated meter reading systems also require a business case, and such business cases can be based on water conservation benefits of replacing substantially malfunctioning existing meters and or energy savings associated with reduced energy use for transportation of employees to manually read meters.

Energy Efficiency

1. What pumping system efficiency is required for a project to qualify for the DWSRF Green Project Reserve?

A: An energy efficiency savings of 20% or greater will be considered categorically green. Any energy efficiency savings below 20% could still count toward the GPR; however, a business case would be required. To view example business cases, see the EPA recovery website (http://www.epa.gov/water/eparecovery/docs/2009_09_25_DWSRF_GPR_Business_Case_Examples.pdf). At minimum, the business case should provide specific information for the pumps and equipment selected, including manufacturer, make, and model of key components, and documentation of the energy efficiency specifications for proposed equipment.

Energy efficiency can be calculated by comparing the proposed new pump and motor efficiency to the existing equipment. However, the value used for the existing equipment should be a measured or estimated value based on how the pumping system is currently operating, not on the rated efficiency from when the pump was first installed.

Business cases for projects specifically designed to improve the operational efficiency of a pump station to improve overall hydraulic conditions in the distribution system will also be considered. For example, if a pump station is no longer operating at the same hydraulic grade line as the rest of the pump stations in that same pressure zone, then energy savings can be achieved by replacing those pumps with ones properly designed for the existing conditions. The business

case must include adequate documentation, such as direct reference to a preliminary engineering report or other planning document, of the reasons for upgrading the pump station, as well as what the estimated energy savings are from doing so.

2. Do Variable Frequency Drives (VFDs) qualify under the DWSRF GPR?

Yes, under certain conditions of use. Many water system motors, especially older ones, turn at nearly constant speed. However, much of the time pumps operate at less than maximum design speed. Installing a VFD will generally increase/reduce pump activity proportionally to increased/reduced flows. Such an upgrade could generate significant energy savings, especially for utilities that experience great changes in flow.

VFDs will be considered categorically green provided that certain conditions of installation and use, needed to ensure that they are always efficient, are met. Note that this means that the project must provide adequate assurances or commitment to meet those conditions for the project to be green, but that a business case is not required. Some VFDs can be manually bypassed, such as in an emergency situation, making it possible to operate the pump without realizing the energy savings made possible by the VFD. This is appropriate for temporary situations, but energy savings are not realized if the VFD is left in bypass mode. Because VFDs must be operated properly in order to achieve “green” savings, GPR qualification must include (1) adequate training for the utility’s staff which operates this equipment (consistent with current operator certification requirements), and (2) integration of current limiting and auto restart features into VFDs and ensuring the controls are intuitive.

3. Do energy audits qualify for the DWSRF GPR?

Yes. Under the DWSRF, energy audits are categorically eligible if they are required as a condition of assistance or if they are reasonably likely to result in a capital project (see EPA March 3 SRF ARRA Guidance, Attachment 8). An energy audit is performed with the expectation that it will reveal ways to reduce energy use at water utilities. “[P]lanning and design activities for energy efficiency projects that are reasonably expected to result in a capital project” qualify for the GPR. Such audits may be funded as projects for planning and design under the Fund, or from those set-asides for technical assistance that are authorized under ARRA

4. Do water audits qualify for the DWSRF GPR?

Yes. Under the DWSRF, water conservation plans or water audits are categorically eligible if they are required as a condition of assistance or if they are reasonably likely to result in a capital project (see EPA March 3 SRF ARRA Guidance, Attachment 8). A water audit is performed with the expectation that it will reveal leaks, malfunctioning valves, or other unaccounted water losses. Considering the widespread need to rehabilitate or replace aging and often leaky transmission and distribution pipes across the US, water audits can be expected to

demonstrate ways to improve the ‘water efficiency’ objectives of ARRA SRF funding. “[P]lanning and design activities for water efficiency projects that are reasonably expected to result in a capital project” qualify for the GPR. Such audits may be funded as projects for planning and design under the Fund, or from those set-asides for technical assistance that are authorized under ARRA

5. Would Supervisory Control and Data Acquisition (SCADA) be eligible for the GPR?

Yes. If a business case for the system identifies substantial energy efficiency improvements.

6. Would the purchase of hybrid vehicles for water and sewer fleets be eligible for the GPR?

If these vehicles are necessary to the treatment system, then they may qualify for the GPR based upon a business case that identifies significant energy efficiency improvements for the activities of the system served by the fleet vehicles.

7. Can we use the funding to support the government power utility's renewable energy projects in return for energy credits for our facilities?

A treatment plant can receive SRF assistance for clean energy projects that generate power for the plant. If a publicly owned clean energy facility provides a portion of its energy to the plant, then that portion of the capital costs can be funded by the SRF. There is not enough information on the nature of the energy credits to determine specifically how the credit works into the scenario described above.

8. Are projects that propose to install turbines/hydrogenerators in pipelines in order to produce clean energy categorically green if the treatment works will directly use the clean energy to power various components of their plants? Are they green if the clean energy will all go back on the grid?

All of these projects are categorically green. Because the turbines are within the transmission system of the system, that should be sufficient also to ensure the basic eligibility of the project for SRF funding, regardless of the end use of the energy.

There is increasing potential to have other renewable energy generation (solar and wind) associated with water infrastructure facilities. In the DWSRF, such projects are eligible if their power goes in whole or part into the water system, at least with a connection for backup power. However, DWSRF eligibility of such other renewable projects may be questionable if all the power goes into the grid and there is no potential to use it as backup power, because unlike turbines within the system’s pipes, detached wind or solar generation isn’t part of the system proper. In such cases, it would be important to have electrical transmission available to enable the system to use at least some of the power as backup power

if necessary. This may over time enable a system with traditional carbon-fueled backup generators to phase them out with renewable backup power.

Green Infrastructure

1. Are green roofs eligible for the DWSRF GPR?

Yes. Green roofs are categorically eligible.

2. Can the entire cost of constructing or replacing a roof with a green roof be considered eligible for the GPR, or are only the incremental costs (i.e. difference between a green roof versus a conventional roof) eligible for funding?

The entire cost of the green roof is eligible, not just the incremental costs. This includes the roof as well as structural changes necessary to support the additional weight of the green roof.

3. Do stormwater ponds count as green infrastructure under the GPR?

No. Green infrastructure practices for wet weather management are those that infiltrate, evapotranspire, and/or harvest and use all stormwater from small storms, and a notable portion of stormwater from larger storms as well. Practices that use these mechanisms help to restore and maintain predevelopment hydrology for not only discharge rates, but also discharge frequencies, durations, and temperatures. Stormwater ponds typically have an extended detention function, and do nothing to mimic stable and natural hydrology for most of these mechanisms. This answer applies to the DWSRF where public water system facilities include stormwater ponds.

Environmentally Innovative

Treatment and Collection Options: A variety of treatment and collection options are available when implementing decentralized wastewater systems. They typically include a septic tank, although many configurations include additional treatment components following or in place of the septic tank, which provide for advanced treatment solutions. Most disperse treated effluent to the soil where further treatment occurs, utilizing either conventional soil absorption fields or alternative soil dispersal methods which provide advanced treatment. Those that discharge to ditches, streams, lakes, and other water bodies require federal or state discharge permits (see below). Some systems promote water reuse/recycling, evaporation or wastewater uptake by plants.

Some decentralized systems, particularly cluster or community systems, often utilize alternative methods of collection with small diameter pipes which can flow via gravity, pump, or siphon, including [pressure sewers](#), vacuum sewers and [small diameter gravity sewers](#). Alternative collection systems generally utilize piping that is less than 8 inches in diameter with shallow burial and do not require manholes or lift stations. Septic tanks are typically installed at each building served or another location upstream of the final treatment and dispersal site.

Collection systems can transport raw sewage or septic tank effluent. Another popular dispersal option used today is subsurface drip infiltration. Package plants that discharge to the soil are generally considered decentralized, depending on the situation in which they are used.

While not entirely inclusive, information on treatment and collection processes are described, in detail, in the “*Onsite Wastewater Treatment Technology Fact Sheets*” section of the [EPA Onsite Manual](#) and on EPA’s septic system website under [Technology Fact Sheets](#).

Surface Discharges: Regarding decentralized systems, discharges directly (via pipe) or indirectly (via ditches, swales, curb sides, tiles, etc.) to waters of the U.S. require a permit issued under the National Pollutant Discharge Elimination System (NPDES) of the Clean Water Act. Surface discharging decentralized wastewater systems are prohibited in cases where there are affordable soil-based alternatives, therefore, surface water discharges are often **discouraged** for individual onsite systems; although where allowed, states typically implement general NPDES permits to regulate these discharges. Surface water discharges for cluster systems, which are usually professionally operated, are more common. USEPA and states have the latitude to evaluate proposed surface water discharge systems for cluster systems on a case by case basis to determine whether they should be considered a decentralized system.

1. Are green practices used by contractors building ARRA funded projects, such as paperless offices and recycling, qualify for the GPR?

No. While using such materials is certainly worthy and to be encouraged, the statutory requirement states that, “not less than 20 percent of the funds shall be for projects, or portions of projects, that include green infrastructure, water or energy efficiency improvements or other environmentally innovative activities.” The use of green practices by contractors does not fall under any of the required categories.

2. Do industrial/municipal recycled materials (i.e. recycled bricks, melted down iron, etc.) used in construction count under the GPR?

The use of recycled materials may be considered an “environmentally innovative activity” only under limited and specific circumstances, and requires a business case. The GPR appendices for both SRFs include as “environmentally innovative projects” those that “manag[e] water resources in a more sustainable way.” The DWSRF Appendix 8 speaks of “delivering services... in a more sustainable way, including projects that achieve public health protection and environmental protection objectives at the least life-cycle costs”. These formulations are consistent and apply the same underlying test, that projects (or portions) must produce more sustainable management of water resources. Therefore, the business case must demonstrate substantial life cycle cost, energy, or water savings in the operation of the facility, as such savings would enable services to

be provided more efficiently and thus sustainably. This information must be clearly demonstrated in the business case to show the benefits were substantial, understood, and intended, and GPR qualification applies only to the portion(s) of a project supported by such a business case.

E. Miscellaneous

1. For the DWSRF, is there a contradiction between the meaning of "infrastructure" and the funding of fixture retrofit?

In the DWSRF, fund eligibilities for projects are not limited to the infrastructure of an eligible public water system in the context of water efficiencies. Tracy Mehan's memo (at http://www.epa.gov/safewater/dwsrf/pdfs/memo_dwsrf_policy_2003-07-25.pdf, DWSRF 03-03, issued 7/25/03) identifies many water efficiency projects that are eligible for DWSRF loan assistance that include fixture retrofits. It also identifies many water efficiency activities that may be funded under the DWSRF set-asides that need not include tangible assets at all