



Fiscal Year 2010 Design & Planning Technical Assistance New Sustainable/Green Infrastructure Project Eligibilities

The funding cycle for Fiscal Year 2010 holds some exciting new additions for WIFA's Design & Planning Technical Assistance (TA) program. Under the purview of The American Recovery and Reinvestment Act of 2009 (ARRA), WIFA seeks to encourage sustainable/green infrastructure project initiatives for both drinking water and clean water applications. As part of the ARRA mandate, WIFA would like to encourage the following new project eligibilities:

General Energy Audits

General Energy Audits collect detailed information about drinking water facility operations by performing a detailed evaluation of energy conservation measures identified. This type of audit will be able to identify all energy conservation measures appropriate for the facility given its operating parameters and will be available free of charge to all private drinking water systems through the Capacity Development program which currently offers System Evaluations, Operations & Maintenance Packages, and Vulnerability Assessments.

Comprehensive Energy Audits

Comprehensive Audits expand on the General Audit described above by providing a dynamic model of energy use characteristics of both the existing facility and all energy conservation measures identified. The building model is calibrated against actual utility data to provide a realistic baseline against which to compute operating savings for proposed measures. Extensive attention is given to understanding not only the operating characteristics of all energy consuming systems, but also situations that cause load profile variations on both an annual and daily basis. Existing utility data is supplemented with sub-metering of major energy consuming systems and monitoring of system operating characteristics. Usually an Energy Optimization Study is incorporated as part of the Comprehensive Energy Audit. These audits would qualify as an eligible project for TA funding for both clean water and drinking water facilities.

Water ReUse & Recycling

The benefits of reclaimed water include a significant reduction on potable water demand for non-potable uses like landscape irrigation, aesthetic features such as golf course hazards, agricultural irrigation or industrial processes. This reduces demand on groundwater sources and ensures an adequate supply is available for human consumption for generations to come. In addition to the benefits to the human environment, there are many that serve the natural environment that include the development of wetlands and wildlife habitat as well as riparian restoration and augmentation.

Project eligibilities include feasibility studies or design of the following:

- Infiltration Basins
- Soil-Aquifer Treatment Systems
- Vadose Injection Wells
- Direct Injection Wells
- Reclaimed Water Distribution System
- Wetland Creation & Habitat Restoration

Low-Impact Design (LID) Strategies

LID consists of proper site planning, erosion control measures and catchment systems to maximize opportunities for water recycling and reuse, as well as aid in the prevention of pollution by surface run-off which can carry such chemical pollutants as nitrogen, phosphorous, petroleum hydrocarbons and metals into receiving streams, lakes and washes. The goal of LID is to pursue development while closely mimicking nature's hydrologic cycle through environmentally sensitive site planning and design, building communities based on environmental stewardship, exploring innovative new concepts and technologies for storm water management, and help to augment Arizona's future groundwater source supplies. Project eligibilities for the site design of new facilities include:

- Use of drainage/hydrology as a design element
- Site Fingerprinting
- Minimize/reduce total site impervious areas
- Implement sedimentation/erosion control measures

LID Integrated Management Practices (IMPs)

There are numerous opportunities for existing facilities to participate in integrating LID management practices into their sites that do not involve the preliminary site planning or erosion and sedimentation control practices previously discussed. Many of these management practices can easily be incorporated into the existing site footprint based on the level of additional hydrologic control that is required. By evaluating the features of the existing site, including topography, soils, drainages, and vegetation, facilities can appropriately identify and select LID practices that will be the most advantageous to a specific site. The primary function of IMPs include groundwater recharge, retention/detention of runoff, pollutant settling and entrapment, multiple use opportunities and aesthetic value for attractive communities. Project eligibilities for IMPs include feasibility studies and design for:

- Bioretention cells
- Dry wells
- Filter Strips
- Vegetated Buffers
- Vegetated Swales
- Infiltration Trenches
- Cisterns
- Green Roofs

Utilization of LEED Criteria in Facility Design

Choosing to utilize LEED criteria in a facility's design is an extension of its commitment to sustainability and environmental stewardship, which will position the facility as a good neighbor within the community. In addition, this approach is complimentary and intersects nicely with many of the LID site planning strategies previously discussed. It is important to remember that even though some of the function of water and wastewater treatment facilities may in themselves present challenges to becoming LEED certified, that should not preclude a facility from pursuing many of the suggested green infrastructure design concepts that are available and, more importantly, eligible for WIFA funding. Some project eligibilities include implementing energy efficient pumps, lighting, and fixtures; installing variable frequency drive monitors.

Renewable Energy Use & Production

There are numerous opportunities available to implement the use of alternative, clean, renewable energy sources for both water and wastewater facilities. Integration of energy sources like solar, wind and biogas can be applied on both a micro and a macro scale, depending upon the facility's size, energy demand and geographical location. Clean energy can be used onsite to power facilities, telemetry systems or pump housing facilities. Clean power production through co-generation and/or solar arrays is another opportunity for a facility to utilize any one, or combination, of these renewable energy strategies. WIFA TA can be used toward feasibility studies, pre-design or design work associated with the use and/or production of renewable energy sources.

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