Drinking Water State Revolving Fund FY12 Green Project Reserve

- Final -

Evergreen Terrace Water Association
FY12 Drinking Water Project
SRF Loan #DW 1201
$448,000

Final Green Project Reserve Justification
Business Case GPR Documentation

INSTALLS PUMP/ VFD IN A NEW DRINKING WATER WELL (Energy Efficiency). Business Case GPR per 3.5-1: *Energy efficient …new pumping systems… (including variable frequency drives (VFDs)*) ($19,600).

Prepared by the State of Idaho SRF Loan Program
August 2013

NEW PUMPING SYSTEM

Summary

- Small water system upgrade project includes a new source well with a new pump/VFD system.
- Estimated loan amount = $448,000
- GPR eligible item = $19,600 pump/ VFD system (based on final construction cost).
- Estimated energy efficiency (green) portion of loan = 4.4% ($19,600)

Background[1]

- The Evergreen Terrace Water Association is located approximately 1.5 miles southeast of the City of St. Maries in Benewah County, Idaho. The Association provides water to residents of the Evergreen Terraces subdivision.
- The Association's primary drinking water well was declared by IDEQ to be under the influence of surface water.
- To address the issue, the Association voted to include an upgrade of their existing well. This includes installing a variable speed drive on the new pump as an energy saving measure.
- It is estimated the pump will operate half time (4,380 hr/yr) on an approximate normal distribution duty cycle.

Results

- The system design specification is for a Goulds 6CLC submersible with an UNICO 1100 Series drive.
- With the VFD, the 15Hp submersible will operate more efficiently at all flows: with the system at half-time pump operation (4,380 hr/yr), normal distribution duty cycle, motor efficiency of 94%, and average energy costs of $0.10/kWh, the WEG Electric Corp. Energy Savings Estimator[2] calculates an annual cost savings of $2,636.
- Total system savings in power costs with the VFD = $2,636/yr.
- Payback period for the system = 7.4 years.

Conclusion

- Utilizing a VFD/well pump system the Association can save up to $2,636/yr. in energy costs.
- The payback period for the system is approximately 7.4 years, well within the estimated life of the asset; therefore the system is GPR-eligible.
- **GPR Costs**: VFD system = $19,600.
- **GPR Justification**: The project is GPR-eligible (Energy Efficiency) per a Business Case by Section 3.5-1: *energy efficient retrofits (includes variable frequency drives)*[3].

[1] February 2010 Facility Plan, Welch Comer & Associates
[2] http://www.weg.net/green/us/save-money.html
[3] 2012 EPA Guidelines for Determining Project GPR-Eligibility. Attachment 2.