Drinking Water State Revolving Fund Green Project Reserve
- Final GPR Justification -

Riverbend Estates Drinking Water Project

SRF Loan #DW1206 (pop. 117)

$278,135

Final Green Project Reserve Justification

Business Case GPR Documentation

INSTALLS VFDS ON TWO EXISTING WELL PUMPS (Energy Efficiency). Business Case per 3.5-1: … *energy efficient retrofits (includes VFDs (variable frequency drives)).* ($5,200).

Prepared by the State of Idaho SRF Loan Program
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PUMP RETROFIT[1]

Summary

- VFD installation on two existing well pumps.
- Loan amount = $278,135
- Estimated energy efficiency (green) portion of loan = $5,200 (2%)
- Estimated annual energy savings of $2,636 per year resulting in a payback period of approximately 1.9 years.

Background

- Riverbend Estates is a small subdivision in rural American Falls, Idaho.
- As part of a project to address arsenic problems in their drinking water supply, the Association voted to include an upgrade of their existing wells. This includes installing variable speed drives on the two existing pumps as an energy saving measure.
- It is estimated the pumps operate half time (4,380 hr/yr) on an approximate normal distribution duty cycle.
- The wells currently produce 50gpm each.

Results

- The VFD design specification is for two UNICO 1100 Series drives or equal.
- With the VFD, the pump will operate more efficiently at all flows: with estimated VFD costs of $5,200 and 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 with a payback period of 1.9 years.
- Total savings in power costs with the VFD = $2,636/yr.
- Payback period = 1.9 years.

Conclusion

- By installing VFDs on two 7.5 well pumps the Association can save up to $2,636/yr. in energy costs.
- The payback period for the VFDs is approximately 1.9 years, well within the estimated life of the asset; therefore the VFDs are GPR-eligible.
- **GPR Costs**: Installing VFDs = $5,200.
- **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] 6/20/12 Correspondence with Bryan Phinney P.E., Design Engineer, Keller Engineers
[2] http://www.weg.net/green/us/save-money.html
[3] 2012 EPA Guidelines for Determining Project GPR-Eligibility. Attachment 2.