City of Rockland Wastewater Project
SRF Loan #WW 1206
$3,000,000

Final Green Project Reserve Justification
Business Case GPR Documentation

INSTALLS NEW ENERGY-EFFICIENT MOTOR ON IRRIGATION STATION PUMP (Energy Efficiency). Business Case per GPR 3.2-2 & 3.4.1: if a project achieves less than a 20% reduction in energy efficiency, then it may be justified using a business case; project must be cost effective...energy savings and payback on capital and operation and maintenance costs [must] not exceed the useful life of the asset ($5,000).
NEW PUMPS AND MOTORS (INTERIM)¹

Summary
The land application irrigation pump will be equipped with a premium high efficiency motor to conserve energy and enhance the operability of the land application process.

- Funding = Approved $3,000,000 SRF loan
- New energy efficient pumps = $5,000
- Estimated Categorical energy efficiency (green) portion of loan = $5,000 (<1%)

Background
- The land application irrigation pump will be equipped with a premium high efficiency motor to conserve energy and enhance the operability of the land application process. A VFD will not be installed for the irrigation pump since it will run at a constant speed while the irrigation pivot will vary the speed at which it moves.

Calculated Energy Efficiency Improvements
- The irrigation Pump will be installed with a premium high efficiency 20 Hp motor (92.5% efficient) @ $5,000.
- A standard efficiency 20 Hp motor (88.5% efficient) would typically be 15 to 30 percent lower in cost than a premium efficient motor = $4,250².
- If the irrigation pump runs for 1,100 hours per year the following savings can be realized:
  Energy Savings = 14.92 kW x 1,100 hrs/yr x (1 - (0.885 / 0.925)) = 794.1 kWh/yr = @ $0.12/kWh = $86/yr
- At $86/year energy saving utilizing a premium efficiency motor, the payback period for the cost differential between a typical standard efficiency and premium efficiency motor ($750) would be $750/86 = 8.8 years.

Conclusion
- The motor for the irrigation pump is GPR-eligible as using a high efficiency motor is cost effective i.e. the payback period of 8.8 years is less than the useful life of the asset.
- GPR Costs: New premium energy efficient motor = $5,000.
- GPR Justification: Motor is Business Case GPR-eligible by Section 3.2-2 and 3.4-1³: if a project achieves less than a 20% reduction in energy efficiency, then it may be justified using a business case; project must be cost effective…energy savings and payback on capital and operation and maintenance costs [must] not exceed the useful life of the asset ($5,000).

¹ 7/27/13 Interim GPR Justification, M. Jaglowski P.E., Keller Associates