Business Case for Meter Replacement

Town of Smallville

DATE

Adding Radio-Read capability is a categorically green activity. However, replacing the meter itself – even in conjunction with a categorically green radio read equipment – requires a business case.

Summary & Project Description

The proposed project replaces _____ existing water meters (with radio-read meters, and includes related hardware and software). The proposed (radio-read) meters are expected to save the Town an estimated _____ million gallons in lost water and _____ kWh in electricity over their expected service life of _____ years.

The total estimated project cost is $_____, to be paid with a DWSRF loan to be paid back over _____ years. It is estimated that the total savings associated with the (radio-read meters) will equal the total project loan value in _____ years.

Comment [VJT1]: Repayment period must be less than the expected service life of the proposed AMR meter and radio-read system.

This business case concludes that the project is "green" under North Carolina's drinking water state revolving fund (DWSRF) guidelines.

What is the useful life of the meter according to the manufacturer?

Preferred: The manufacturer warranted the existing meters to be accurate per AWWA or better standard until an end of the service life of _____ years.

ALT: The actual date of installation and manufacturer's performance warrantee are not available for the meters covered by this project.

But this project replaces meters more than twenty years of age, which will have exceeded any manufacturer's service life.

When were the meters installed?

The Town has _____metered connections. The age of the installed meters are approximately as tabulated below:

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Table 1: Age profile of meters

# of meters	Installed between	Age [years]
_____	1986-1991	20-25
_____	1981-1986	25-30
_____	1976-1981	30-35
_____	1971-1976	35-40
_____	1966-1971	40-45
_____	before1966	45+

Since _____, the Town utility staff has been proactively replacing approximately _____ meters per year; starting with the oldest meters (those for which no installation record exists). _____ years into this replacement program, approximately _____ of the Town's existing meters are less than twenty years old, and will not be replaced during this project:

This project replaces _____ meters installed before _____, which will be more than twenty years old.

ALT: The actual date of installation and manufacturer's performance warrantee are not available for the meters covered by this project. But this project replaces meters installed before 1991, which are more than twenty years of age.

What is the accuracy of the meter at both installation and at the current time / at end of useful life (according to the manufacturer)?

Preferred: The manufacturer estimated the existing meters to be accurate within _____percent when manufactured and within only _____ percent at the end of the service life of _____years.

ALT: The actual manufacturer's performance warrantee is not available for the meters covered by this project. But this project replaces meters more than twenty years old, which are known to under-read (especially at low flows). The meters proposed for replacement will have exceeded any manufacturer's service life.

Comment [VJT2]: Year.

Comment [VJT3]: Fraction or percentage.

Comment [C4]: Or the warranted service life, not to be less than 15 years.

Comment [C5]: Or the warranted service life, not to be less than 15 years.

Comment [VJT6]: +/-1.5% for most AWWA std. meters.

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How much water is likely to be currently unbilled (and will presumably be saved)?

Project what fraction of apparent losses of water will now be metered, showing all work.

The gain in meter accuracy provided by this project is expected to account for _____ percent of current apparent losses of water. Based on annual production from the system of _____ million gallons, an annual water loss of approximately _____ million gallons may be eliminated.

Provide calculations here

Optional: How much electricity is used to treat unbilled water and may, therefore, be saved?

Project how much and what fraction of electricity is currently used to treat apparent losses of water can now be "saved".

Every year, _____kWh are used to treat apparent losses of water – _____ percent of the total electrical usage for treatment. When the water is accounted-for, the cost of the electricity can be properly allocated and/or saved. At a cost of $_____ per kWh, this allows for a savings of up to $_____ annually.

Provide calculations here

Benefits

A summary of the benefits is as follows:

1. The project is expected to account for _____ percent of current apparent losses of water, which will make up for a loss of approximately _____ million gallons annually.
   - Conserve water by isolating non-revenue system losses.
2. Properly allocate _____ kWh of electricity/year, saving up to $_____ per year.

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Might be applicable for a system where actual leaks at meters {as opposed to under-reporting} is a significant real loss of water:

3. Conserve water by reducing leaks at meters.
4. Decrease total volume of water treated and pumped into the system.
5. Decrease electricity required to treat and pump water.
6. Decrease operation, maintenance and administrative costs.

Conclusion and Recommendation

The proposed project to replace _____ existing water meters (with radio-read meters), is "green" under North Carolina's drinking water state revolving fund (DWSRF) guidelines.