

## PROBLEMSOLVER

By Fran House

# SmartMeter Proves to be Smart Choice for Illinois City



*In 2001, Severn Trent Services developed and launched the SmartMeter SE700, a water meter specifically aimed at the North American market. Soon after, Tinley Park, Ill., ordered 5,000 intelligent meters and SmartPad devices to enable the water meters to be read remotely. The village also received SmartReader handheld devices to read the newly installed SmartMeters.*

A few years after the initial SmartMeters were installed, the village needed to have the remaining meters replaced. Rather than make a snap decision, village officials decided to undertake a detailed cost benefit analysis to determine the best solution. This consisted of two steps: a theoretical calculation of the loss of revenue from the mechanical meters, and an analysis of the actual earning performance of SmartMeters compared with the mechanical meters.

### The test

The village removed a number of old mechanical meters to test their accuracy and establish the potential effect on revenue of a variety of replacement strategies. A weighted analysis against typical consumption, including low (20%), average (65%) and high (15%) flow rates, was undertaken on the removed meters.

The meters analyzed ranged from four to 15 years in service, with an average of approximately 12 years across a sample of 104 meters. The weighted average accuracy of the meter sample was found to be 89.3%, which equates to a revenue recovery loss of approximately \$8.62 per meter per quarter, or \$34.48 per year, based

on an average quarterly utility bill of \$71.97.

Assuming the sample is typical of the installed base, the theoretical revenue loss for the next 12 months was estimated at \$474,273 across the 13,750 meters subject to replacement. In addition to the theoretical revenue losses, the analysis of actual consumption figures highlighted the consistent performance of the SE700s in generating revenue, compared with the consistent under-registration and progressive loss of performance of the aging mechanical meters.

As a result, the SE700s installed by the village demonstrated consistent performance in earnings, while the accuracy and revenue generated by the mechanical meters dropped considerably over time.

### Additional consideration

Rather than focus exclusively on the initial capital cost, potential long-term, whole life cost savings were also an important consideration. In the Tinley Park example, if no meters were exchanged, the minimum revenue losses would be more than \$474,273 per year. Over three years, this would result in a theoretical minimum total loss of revenue of over \$1,422,819, which is higher than the cost of replacing all of the meters.

SmartMeter water meters are designed to overcome the billing problems caused by grit and air in the distribution system. The design has no moving parts, which ensures that metered flow and income remain accurate over the entire product lifetime. Typical payback of SmartMeters is roughly three years, depending on the cost and quality of water available.

*Faced with the dilemma of replacing aging water meters and losing nearly \$1.5 million in revenue, the village of Tinley Park opted to install the Severn Trent Services SmartMeter SE700*

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Tinley Park receives its water supply from Lake Michigan, which offers high-quality water that is low in particulates. Most wear would be due to the mechanics of the meter rather than any grit passing through the water distribution network. In places where the water quality is lower, even greater wear and higher revenue losses occur by using mechanical meters.

The village of Tinley Park elected to replace the entire installed base of mechanical meters with SmartMeters over the following three years. One year after this change, all the meters supplied by Severn Trent Services are continuing to show consistent revenue recovery. **WWD**

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