The United Illuminating Company

United Illuminating Benefits from Gridstream MDMS Flexibility and Time Saving Automation

Landis+Gyr

manage energy better

Overview

The United Illuminating Company (UI) is a New Haven, Connecticut investor owned electric distribution company established in 1899. It serves over 325,000 residential, commercial and industrial customers in the Greater New Haven and Bridgeport areas.

In 2010, UI upgraded their one-way daily meter reading system, installed in 1999, to a hybrid AMR/AMI solution, a combination of one-way meters and FOCUS® AXR-SD and FOCUS AXR (two-way) meters, using the Gridstream® RF mesh network. From the start, the UI goal was to tap into daily and interval data in billing and distribution operations for:

■ Time of Day (TOD) Billing

■ Outage detection

■ Theft detection (non-technical loss)

■ Renewable energy program support

■ Customer Care Center support

■ State of Connecticut voluntary and mandated programs for rate design and energy strategies

For its vision, UI is seen as one of the leaders in the utility industry. The ability to leverage timely, accurate data can fuel many utility programs to improve consumer choice and the ability to lower energy bills through pricing and renewable energy programs. In addition, UI sought to gain operational improvements by leveraging data to augment outage detection and response times as well as quickly finding

revenue leakage scenarios by detecting tampering and energy diversion.

Challenge:

"As we started bringing in daily data from the metering system, we began realizing the value of data. But, we found we were unable to effectively manage the huge data quantities," said Guy Cattaruzza, Senior Director, Revenue Metering Systems & Standard Field, United Illuminating. "Our internal data management system was at its design limits and was not flexible to change with the advancing data analysis and data requirements needed as we moved forward. Few people if any, outside of our small group of data analysts, could easily access the data and use it to any benefit."

UI business analysts routinely combed through the data to help customer service representatives investigate high bill inquires and various other customer related energy questions. Large volumes of data without business rules, including meter events, outage information and premise-customer relationships caused limited visibility into the data. This led to unnecessary and sometimes lengthy investigations. For example, fire pumps have their own meters and typically show zero consumption. When fire pumps are tested, a huge spike in consumption appears. Without the ability to include a description that associates this meter number with the fire pump, UI business analysts could spend a considerable amount of time correlating meter

SOLUTION COMPONENTS:

AMI

■ Gridstream RF Network

■ FOCUS AXR-SD and AXR meters

Data Management

■ Gridstream MDMS

■ Command Center

BENEFITS OF THE GRIDSTREAM MDMS

■ Standards-based, enterprise solution is easily integrated to adjacent utility systems (SAP® IS-U/CCS, Aclara ENERGYprism®

■ Flexible business process configuration parameters

■ Scalable architecture ensures availability and high-volume throughput

■ Role-based security enables the right level of access for each job function within the utility

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numbers with premise IDs — only to realize several hours later that the meter was associated with a fire pump that sits idle most of the time.

A clean energy leader, Connecticut created a clean energy fund in 2000 to encourage businesses and residents to install renewable energy generation equipment such as solar panels and wind turbines. Then, in 2013, the Department of Energy and Environmental Protection (DEEP) developed the first ever Comprehensive Energy Strategy for Connecticut which further promoted clean energy and micro grids. These solutions would enable consumers, both residential and commercial, to generate their own electricity or look to alternate suppliers for clean energy generation options. In turn, the deployment of renewable energy sources from early 2000, required UI to account for the amount of electricity these sites return to the grid, the net energy component of the site. UI did this by deploying two meters — one for energy delivered by the utility and one for energy received from the customer. This requirement for two meters was the initial design for deploying net energy metering so that it could be implemented in a very short timeframe and be compatible with current designs of the billing engines and the one way meters currently in use at the time.

"The deployment of the two meters had its drawbacks though. It was, to say the least, very unsightly for the customer and had additional cost associated with installation of two meters. It also required many checks and balances, both in the field and in the office, to ensure the net energy installation was correct." said Cattaruzza. "We needed a much better method of streamlining the timeliness of our meter to bill process."

Solution:

With the deployment of the Gridstream RF mesh network and two-way advanced meters, UI then began the shift from its internal data management system to Landis+Gyr's Gridstream Meter Data Management System (MDMS), when it purchased the Gridstream MDMS* in 2009. Implementation of the Gridstream MDMS brought new heights to UI's smart
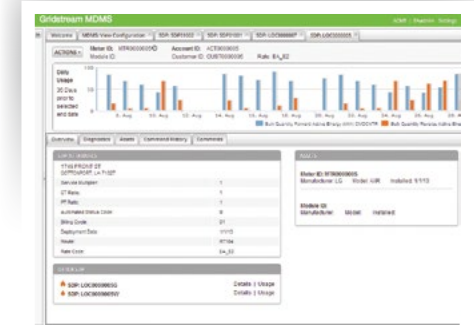
grid vision. For the first time, a flexible, interoperable and reliable solution was at their disposal.

The Gridstream MDMS is configured to store all the historical data for every service delivery point in the utility's service territory. Its Revenue Operations application is part of the base offering and is responsible for all the validation, estimation and editing (VEE) processing as well as offering analytics and business processes for virtual and net metering.

Today, UI can access, at any time, a complete history of daily meter reads and diagnostic events contained within the Gridstream MDMS. This data is obtained based on employee role in the utility.

Using standards-based interfaces, Gridstream MDMS offers straightforward integration with adjacent systems such as the Customer Information System (CIS), customer web portals (billing alerts and bill to date information), Conservation and Load Management (CLM) applications, Mobile Workforce Management Systems (MWMS) and Outage Management Systems (OMS). This enables business analysts and customer service representatives (CSRs) to procure a complete, consolidated view of each consumer's usage history at any time. When a consumer calls with a billing inquiry, UI's CSRs quickly reference past usage without requiring assistance of a business analyst to dig up information. "Customer service interactions have become more productive, because there is more information at the fingertips of the CSRs," said Cattaruzza.

This historical information is a key resource in UI's TOD billing programs because more than 20% of UI's residential customers participate in these TOD programs and all commercial meters collect TOD information, regardless if they are on a TOD rate or not. The Gridstream MDMS enables UI business analysts to calculate peak and off-peak usage to determine the average usage mix for every residential customer that has a two way meter. Cattaruzza envisions enhancements to the online customer web engagement portal that will allow consumers currently on a single period energy rate, to see their actual TOD usage values (instead of

estimates or class averages) and decide if the TOD rate is better for them or not. This will give consumers another tool to better understand and monitor their energy usage.

The Gridstream MDMS net metering functionality brought a streamlined approach as to how UI manages its renewable energy customers. With the MDMS, UI now uses a single, multi-channel meter — to collect the 'in' and 'out' readings and then create a virtual meter so the CIS can calculate the net energy usage or energy surplus for participating customers.

"Before the deployment and integration of the Gridstream MDMS, we installed two meters to figure out the energy used or supplied by the consumer's photovoltaic or other Class 1 renewable energy source", said Cattaruzza. "Now, automated business processes within the Gridstream MDMS have removed the complexity of net energy and virtual metering processing, advanced rate design initiatives and analysis, event monitoring for voltage and outages, and theft of service analysis. The flexibility of the Gridstream MDMS will enable support for the expanded micro-grid strategies being piloted in Connecticut along with a host of other initiatives such as load/asset analysis, interruptible rates, and better management and understanding of the renewable energy sources being added to the distribution system."

*Footnote: *At the time of purchase, the solution was known as Ecologic Meter Data Management System.*