

Powering clients to a future shaped by growth

F R O S T  S U L L I V A N

Excellence in Water
Resourcefulness
Award:

Network Intelligence

Americas

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BACKGROUND AND COMPANY PERFORMANCE

Industry Challenges

Water resourcefulness is essential to preserving livelihoods, preserving wildlife, and reducing fire risk. Improving resourcefulness is especially important to Nevada because it is experiencing extreme weather conditions, causing 40% of the state to suffer exceptional drought. Climate change is partly responsible, as the Colorado River (the source of approximately 90% of the state's water) is at half of its 2020 capacity. In response, the state's utilities are collaborating to improve overall water management operations and reduce climate change's impact. Utilities that leverage technology and service solutions while improving customer behavior can optimize water use and consumption.

This best practice analysis recognizes a utility's resourcefulness when changing customer behavior and implementing technology that significantly reduces water usage and wastage.





FOCUS ON THE FUTURE AND
BEST PRACTICES IMPLEMENTATION

Las Vegas Valley Water District (LVVWD) has implemented a highly aggressive water conservation program. Its service area includes the city of Las Vegas, unincorporated Clark County, and the communities of Laughlin, Searchlight, Blue Diamond, Jean, and Kyle Canyon.

LVVWD has been at the forefront of modernizing its water infrastructure since 2013 with the Itron Advance Meter Read solution. The original contract consisted of 400,000 water communication modules for residential and commercial customers, through which it was able to remotely collect meter data and improve meter reading efficiency and accuracy.

The utility has since taken the initiative to further modernize water infrastructure with a more sophisticated Itron advanced meter infrastructure (AMI) network and Itron data analytics that can provide hourly and interval meter read data. The AMI project started in 2017 and is projected to be completed by 2023.

By deploying an AMI solution, water utilities and residential, commercial, and industrial customers can access hourly interval water consumption data. Interval data enables all parties to detect and address excessive and unknown water consumption and manage water spend budgets. AMI solutions allow utilities to tackle non-revenue water losses. Leaks are especially a concern for smaller and hard-to-reach rural areas.

Interval data enables all parties to detect and address excessive and unknown water consumption and manage water spend budgets.

This advanced meter network features near-real-time water consumption and delivery analysis segmented by specific zones and territories. It can also more precisely detect the cause of abnormalities through its data analytics, which has helped LVVWD improve its maintenance strategy and optimize its water delivery system. Notable data analysis featured in the Itron Analytics consists of:

- **NO DATA**

- A Not Current Read Tamper from FCS prompts the utility to review the account
- Itron Analytics Flow Layer displays gaps in data, such as if communication between the meter and AMR device has been interrupted

ACTION ► A field activity is generated to perform maintenance

- **IMPERFECT DATA**

- Meter register will read Usage for a daily and/or hourly interval
- Single intervals will display the meter read as usage (e.g., 50,000 gallons in 1 hour)
- Daily and/or hourly intervals will reflect excessive usage

ACTION ► A field activity is generated to perform maintenance

- **REVERSE FLOW EVENT(S)**

- At least one digit of the hourly interval is less than the previous interval

ACTION ► A field activity is generated to determine true reverse flows or meter register errors

- **INVESTIGATIONS FOR ZERO CONSUMPTION**

- Meter register displays zero usage on an active service account
- Google Maps display on Itron Analytics helps determine landscape (e.g., grass, pool, lot size)

ACTION ► A field activity is prompted if a property's interval data is determined less than adequate

	1-3 Poor	4-6 Fair	7-8 Good	9-10 Excellent
SOCIETAL IMPACT				
Improving customer awareness and participation				✓
Enabling behavioral change for reducing waste through customer engagement and technology-driven programs				✓
Yielding impressive waste reduction that benefits the overall community served				✓
BUSINESS IMPACT				
Drafting a clear vision to address excessive waste through technology implementation				✓
Achieving operational efficiency as a result of a successful sustainability strategy				✓
Strengthening a utility's brand image as a leader in sustainability				✓

Societal Impact

Improving Customer Awareness and Participation

AMI's 2-way communication system remotely detects continuous water usage and consumption anomalies, and AMI's real-time data is available to both customer service departments and the customer. Customers have access to their daily consumption data through online portals and mobile applications.

Improving customer education and awareness is an essential part of LVVWD's water conservation strategy. The utility uses AMI data to analyze consumption profile data for and develop new conservation programs. Its technicians are then trained to best leverage this data and use it to educate customers on how to improve their water consumption habits.

To spread the word, the utility has public outreach campaigns and rebate programs for water-efficient applications (such as Cash for Grass). It also sponsors the local hockey team and posts ads on water conservation.

Enabling Behavioral Change to Reduce Waste through Customer Engagement and Technology-driven Programs

To further improve customer awareness regarding water leaks and high water usage, LVVWD recently upgraded its web-enabled customer account page and mobile app to include alerts such as "Notification of Continuous Flow" and "Excessive Leak Cases." Leak cases and locations are identified by combining Customer Information System (CIS) information and meter reading data. Customers can also be alerted with predictive billing estimates, which are based on average daily usage during the billing cycle.



Yielding Impressive Waste Reduction that Benefits the Overall Community Served

With access to near-real-time and historical consumption data, customer service advisors can resolve customer inquiries and diagnose causes for high usage events more effectively. For example, service line meter leaks can be detected and reported to the customer 3 weeks earlier than before. Service line leaks refer to continuous water flow for 7 consecutive days. Approximately 91% of excessive leak cases are resolved in less than 90 days. This faster water consumption anomaly detection also helps improve overall repair and maintenance time of defective meters.

Business Impact

Drafting a Clear Vision to Address Excessive Waste through Technology Implementation

AMI plays a crucial role in LVVWD's water conservation road map because AMI's data measures customer adherence to the region's strict watering guidelines. The utility also uses the data to evaluate the effectiveness of different conservation programs.

LVVWD has plans to further explore the benefits of AMI data and its business impact. Its strategy includes adding chatbot and text message features to its customer mobile app, enhancing billing and payment functions, and improving cross-department coordination in terms of data access.

A representative from the utility stated, “Long term, we plan to leverage the data to send communications to our customers about their water usage, high consumption, or tamper-type events at a near-real-time rate. We'll also be adding chat, where the data will continue to support questions and education around water use. A customer portal will eventually be offered to our customers to allow them an opportunity to investigate water usage issues on their own.”

Achieving Operational Efficiency as a Result of Successful Sustainability Strategy

Since deploying the AMI system, LVVWD has seen up to a 3% reduction in non-revenue water losses in small rural areas. It also detected a higher amount of water losses that would have otherwise gone unnoticed.

LVVWD reduced its truck rolls by 30,000 miles between 2018 and 2019, which helped the utility reduce its overall carbon footprint. Its automatic daily meter read collection eliminates the need for drive-by collection. The system features a near meter read functionality that allows the utility to complete customer account activation. It also created a start/stop calendar, allowing customers to activate or deactivate according to its meter read schedule.

Strengthen Utility's Brand Image as a Leader in Sustainability

Given its aggressive water management strategy and its ongoing improvements, the utility has clearly taken the role of a water management industry leader. To share its best practices with other utilities, the utility has hosted Water Smart Innovation conferences for the past 12 years, further solidifying the utility as a strong sustainability leader.

CONCLUSION

LVVWD has delivered exceptional results through its strategic investments in advanced solutions that resourcefully manage its water supplies. Its strong overall performance has proven LVVWD's excellence in water resourcefulness.



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