Flow Monitoring:
Insights and Advances

AT A GLANCE:

By monitoring numerous pipe attributes (product levels and location, flow rates, or treatment activity, to name a few) companies can enhance process efficiency, improve the operating environment, and reduce operational cost.

A flow meter is used to control and measure mass, volumetric, linear, or nonlinear flow rates of a gas or liquid moving through a pipe. According to recent research, the global flow meters market is valued near $8 billion and is expected to show continuing growth into the foreseeable future.

Much of the growth will come from the demand for connected, smart water management systems and residential gas distribution networks. Other areas of flow meter growth will involve water/wastewater; gas and oil (fracking); industrial gas / propane; mining; petrochemical; power generation; food and beverage; pharma / biotech; HVAC; and test and measurement research.

The deployment of smart water meters and sustainable flow management systems has helped U.S. utilities reduce water leakages and water consumption by 20%. In regard to energy, the smart meters have resulted in U.S. consumers reducing their consumption by 30%. Globally, these trends continue in parallel, with smart meter installation helping consumers in the UK reduce gas consumption by 30%.

But reduction in usage is not the only end result. By monitoring numerous pipe attributes (product levels and location, flow rates, or treatment activity, to name a few) companies can enhance process efficiency, improve the operating environment, and reduce operational cost.

Overcoming Hurdles

Systems that monitor the flow and pressure of substances are undergoing a technology revolution, allowing companies to achieve significant savings and efficiencies in what was once thought to be a static industry. But this road to progress has some hurdles to overcome and smart metering will be integral. Today, utility providers still are hesitant to choose between a mobile or

fixed network until more information is available on functionality, connectivity, and cost. But connectivity options will expand, significantly lowering the cost of deployment and management; meters, many times, are located in hard-to-read places so smart meters would work especially well in locations that cannot be accessed easily, reducing the return trips for a human resource. Undiscovered leakages and / or unlawful extraction hinders bottom-line results so real-time data gleaned from flow monitor sensors can have a positive monetary effect. Flat fees for water are deemed imprecise and add nothing to conservation. But, with less than half of the U.S. market having installed smart meters, and with many cities charging for water, the necessity for usage data is growing. To that end, by corralling the management of smart flow networks in real time, utility companies are able to ensure accurate billing while improving customer satisfaction.

Global Coverage

Aeris provides maximum and redundant coverage for flow monitoring devices. The Aeris IoT Services platform simplifies the complexity of device deployments with seamless connectivity management, regardless of technology or the underlying network.

The Aeris IoT Services platform is capable of multiple connectivity protocols. Aeris' multi-technology, multi-network connectivity solutions deliver maximum value by combining the benefits of 2G / 3G / 4G cellular connectivity with the benefits of non-cellular technologies, such as low power wide area networks (LPWA), Wi-Fi, and more across CDMA, GSM, and LTE networks. Aeris seamlessly
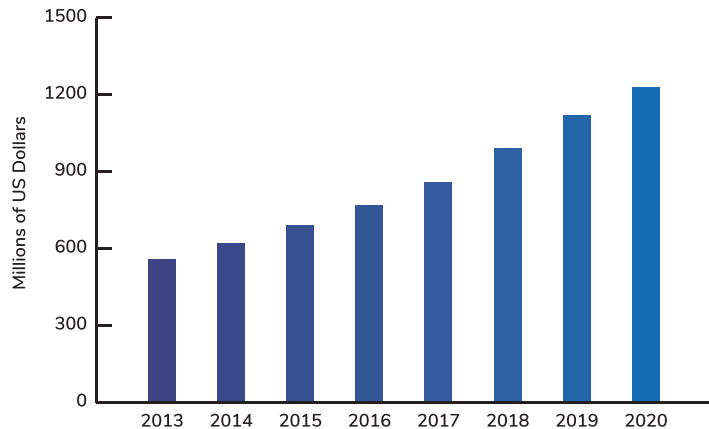
delivers connectivity in more than 190 countries, across more than 550 underlying carriers, all delivered on a single platform.

Customers can oversee their flow monitoring devices anytime and anywhere with an online portal that supplies up-to-date information for precise operational control, as well as providing notifications for inefficient partial fills, emergency deliveries, or run outs.

Companies now can tap into data delivery networks and leverage applications that can watch, record, inform, and adjust data from pressure monitoring systems to drive costs down and improve business operations. With always-on monitoring, managing pressure and flow levels is safer and requires far less onsite labor.

Additionally, the total cost of ownership for monitoring products is low because the connected devices are built to last up to 10 years and may only be active for a few minutes each day, sending small amounts of data.
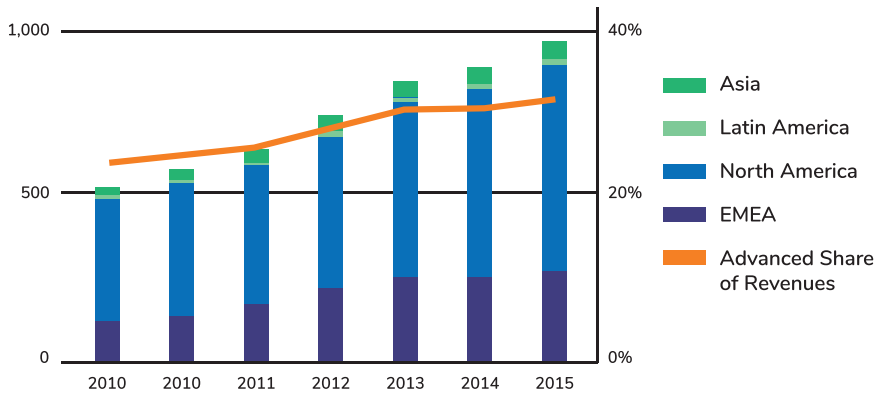
Extended Battery Life

For monitoring companies operating on razor-thin margins, longer battery life for devices can result in significant savings over time. The coverage provided by Aeris' CDMA and GSM networks ensures strong, continuous network signaling. This vastly improves your ability to manage battery-powered devices. Aeris customers can significantly prolong battery life through data management capabilities provided by the Aeris AerPort management platform, which allows you to fine-tune data utilization for each device. So rather than always-on transmission, flow monitor data can be gathered and sent on an as-needed basis, extending battery life and lowering the need for human interaction as batteries run low or die far less often.

Global Revenue Forecast for SmartWaterMeters (Millions of US Dollars)

The World Market for Advanced Water Meters Revenue Opportunity by Major Region

Changing Product Mix – 2010 to 2016; Revenues ($M); % Growth

Legend:
- Asia
- Latin America
- North America
- EMEA
- Advanced Share of Revenues

Chart axis labels: 1,000 / 500 / 0 (left); 40% / 20% / 0% (right); Years: 2010, 2010, 2011, 2012, 2013, 2014, 2015

The bottom line for customer choice will come down to cost and coverage. Aeris has helped customize multiple deployments with flexible rate plans that allow a company to minimize costs by charging for data transmission only when devices are turned on.

As prices have dropped, and the expectation among customers for more data grows, monitoring companies are increasingly turning to IoT / M2M solutions to maintain a competitive advantage by providing even more usage data and device management visibility at a far lower cost.

Aeris Infinity Support provides full support five days a week, with ten-minute response times, and proactive monitoring and issue identification. The average time for Aeris to resolve an issue is about 30 minutes, half the time of our competitors. Staffed by IoT / M2M experts, and powered by the Aeris IoT Services technology stack, Aeris Infinity Support sets a new standard in the industry.

Aeris IoT Services networks were built specifically for IoT, delivering increased performance, control, and visibility. Contact Aeris now and let us help you change your flow monitoring status.

$ Lowest Total Cost of Ownership

Aeris offers the lowest total cost of ownership for monitoring programs. Aeris offers customers more flexibility, allowing users to make changes without incurring significant additional charges. And we also can eliminate costs in supply chain between activation, manufacturing tests, and implementation, thereby reducing time-to-launch for new solutions into the market.

Boosting Productivity and Reducing Costs

The world is full of static tanks, pipes, and cylinders that could be connected to a communications network to make them easier to manage. In fact, in the U.S. market alone, about 10 million bulk propane tanks are suitable for monitoring, but less than 2% of those tanks are being monitored today.

Aeris works with companies around the globe to deliver solutions that provide a competitive advantage. By offering reliable, low-cost solutions with maximum cellular coverage, and enabling long battery life for monitoring devices, we significantly reduce costs compared to competitors.

Solution and Support

Advanced metering analytics can provide proactive insights for utility management. A partnership with Aeris can help differentiate your product from the competition, optimize your technology investment, and provide greater value to your customers.

When it comes to reliability, no cellular carrier supersedes Aeris in ensuring critical data is available when and where your customers need it. Other carriers' transmissions often fail in remote areas, but Aeris provides a seamless footprint of multiple cellular carriers, in addition to our own network.

ABOUT AERIS:

Aeris is a technology partner with a proven history of helping companies unlock the value of IoT. For more than a decade, we've powered critical projects for some of the most demanding customers of IoT services. Aeris strives to fundamentally improve businesses by dramatically reducing costs, accelerating time-to-market, and enabling new revenue streams. Built from the ground up for IoT and road tested at scale, Aeris IoT Services are based on the broadest technology stack in the industry, spanning connectivity up to vertical solutions. As veterans of the industry, we know that implementing an IoT solution can be complex, and we pride ourselves on making it simpler.

Visit **www.aeris.com** or follow us on Twitter **@AerisM2M** to learn how we can inspire you to create new business models and to participate in the revolution of the Internet of Things.

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