



## Utility Infrastructure Solutions from Inscope Data

### Introduction

Millions of homes and businesses across the United States and many countries around the world are benefiting from new energy smart grids and automatic meter reading (AMR) devices. This exciting innovation replaces century-old analog meter technology by automating meter readings wirelessly for utility usage of water and energy and securely transmitting them to the utility company over combination of wired and wireless networks.

Forward-looking utility companies are leveraging smart meter solutions to differentiate their customer service and marketing strategies. The digital capture of real-time meter data is now a marketing asset, enabling energy companies to better understand customer consumption patterns and introduce plans and pricing to deliver more value to customers, higher efficiency of energy and natural resource management, and better returns to shareholders.

### Benefits of Smart Meters

According to California Public Utilities Commission (CPUC), the benefits of Smart Meters to customers, the states, and utilities, include:

- Allows for faster outage detection and restoration of service by a utility when an outage occurs and therefore, less disruption to a customer's home or business.
- Provides customers with greater control over their electricity use when coupled with time-based rates, increasing the range of different pricing plans available to customers and giving them more choice in managing their electricity consumption and bills.
  - Smart Meters enable a utility to measure a customer's electricity usage in hourly increments.
  - If a customer elects to participate in time-based rates offered by the utility, they have the opportunity to lower their electricity demand during "peak" periods (the peak period for most utilities are summer afternoons) and potentially save money on their monthly electric bill.
- Allows customers to make informed decisions by providing highly detailed information about electricity usage and costs. Armed with a better understanding of their energy use, consumers can make informed decisions on how to optimize their electricity consumption and reduce their bills.
  - Customers with Smart Meters today can access their prior day's electricity usage through their utility's website.
  - In the near future, by installing an in-home display device that communicates wirelessly with a Smart Meter, a customer could monitor their electricity usage and costs in real-time (similar to the price and quantity displays on a gas pump), allowing them to adjust their usage instantaneously in response to changes in prices or system reliability events, for example by delaying the use of a high-energy appliance or shutting it off. This could be done manually or automatically by pre-programming the device or appliance.

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- In the near future, it may be possible for a customer to receive automatic alerts (via emails or text messages) to notify them of when the electricity consumption exceeds a pre-determined threshold.
  - Helps the environment by reducing the need to build power plants, or avoiding the use of older, less efficient power plants as customers lower their electric demand.
    - This is beneficial for all utility customers because the costs of building new power plants or relying on older, less-efficient power plants are eventually passed on to customers in retail rates. Building power plants that are necessary only for occasional peak demand is very expensive. A more economical approach is to enable customers to reduce their demand through time-based rates or other incentive programs.
    - When the utilities avoid the use of “peaker” plants to meet high demand, the environment benefits because peaker plants typically have higher greenhouse gas and other air emissions.
  - Increases privacy because electricity usage information can be relayed automatically to the utility for billing purposes without on-site visits by a utility to check the meter. This also results in lower operational costs for the utility, which means savings for customers as utility rates reflect the utility’s cost to operate. In addition, as technology improves and changes over time, customers can receive the benefit of those changes without the utility having to replace the meter itself.
  - Smart Meters are the first step toward creating a Smart Grid in California. With a Smart Grid, digital technologies are applied to every aspect of the industry, from generation, to transmission, to distribution, to the customer interface. This will help the grid sense what is happening to the energy flow, keep it in balance, and improve reliability and make the grid more resilient in the face of outages and other problems.

### **Moving Forward with Smart Grids**

United States smart meter deployments are forecasted by Edison Foundation to reach 60 million by year 2020. The world wide figures are drastically more with emerging markets leading the way. In California alone, the CPUC has already authorized utility companies the installation of over 17 million smart meters. With the rapid demand on existing outdated utility infrastructure, the need for an overhaul with higher security, reliability, and performance with new smart grid system requires products specifically designed for the demand of utility infrastructure.

### **Inscape Data Utility Wireless Infrastructure Solution**

Three turnkey utility infrastructure product offerings from Inscape Data Corporation are: Rugged Wireless, Outdoor PoE Switches, and IP Video Security Surveillance Systems.



### ***Rugged Wireless***

The ruggedness of Inscap Data Corporation's SB54 & BR54 high-power dual band radios meet the challenges of utility wireless connectivity solution with premium features like rugged industrial construction, stainless steel mounting bracket, IP68 compliant weatherproof enclosure, and military antenna weatherproof caps. Standard turn-key feature package includes:

- \* Long Range 2.4 GHz or 5 GHz Dual Frequency Band Operation
- \* High Power Transmit Radio
- \* Up and Downstream Bandwidth Control in Client Mode
- \* Integrated 12dBi 2.4GHz patch antenna
- \* Internal and External Antenna Selection
- \* Rugged Weatherproof Design
- \* Power over Ethernet
- \* Secure Wireless Transmission

Inscap Data rugged wireless products may function as point to point and point to multipoint for backhauling of data from utility meter aggregation point to nearest internet point of presence or in some cases, directly to the utility company's network and data processing if line of site is present. Please consult with an Inscap Data product or sales team for further information on the rugged wireless product offering for the utility industry.

### ***Outdoor PoE Switches***

Inscap Data's LinkPower™ LPS1000 All Weather Adjustable Voltage PoE Switch is the industry's first outdoor five-port Ethernet Switch with an adjustable voltage feature. Based on Inscap Data's patent-protected technology, the LPS1000 Adjustable Voltage PoE Switch offers four voltage levels, which powers a wide range of utility infrastructure wireless network and security applications and significantly reduces the complexity of outdoor network installation, integration and ongoing network maintenance.

The LPS1000 PoE Switch offers local power level configurations. Locally, each LPS1000 port is designed with a simple, easy-to-use push button for power level configuration. Remote monitoring over the internet can be achieved using a common internet web browser. The adjustable voltage and other dynamic features, including remote web browser PoE, remote device power cycle, heartbeat monitor and individual port troubleshooting capabilities, make the LinkPower LPS1000 the industry's most effective and robust outdoor PoE Switch to power outdoor utility network systems like wireless bridges and IP video security cameras.

The core of the LPS1000 outdoor PoE switch is its outdoor industrial design with integrated PoE surge protection to protect all connected utility network systems and remote per port reboot capability. Outdoor Ethernet based equipment, like those used in the utility industry, suffers surge related damages if not properly protected can add up to significant maintenance and replacement cost, due in part, to premature equipment mortality from water damage, lightning and/or electrical surges. While it is difficult to quantify lightning losses or water damage,



industry experts estimate many millions of dollars worth of damages and losses occur each year. The LPS1000 outdoor PoE switch safeguards and powers the outdoor utility PoE based network equipment with proper surge protection and lowers over all maintenance cost to the utility company. Please consult with an Inscape Data product or sales team for further information on the outdoor PoE switch product offering for the utility industry.

### ***IP Video Security Surveillance***

The state-of-the-art H.264 and Mega-pixel, MPEG-4, and Motion JPEG professional IP Video security products from Inscape Data Corporation offers the most cost effective video security solution for the utility industry. Paired with the Inscape Data rugged wireless and outdoor PoE switch solution, utility facilities and transmission infrastructure are secured. In many cases in remote areas where wiring is not possible Inscape Data wireless IP video solution provides surveillance in critical remote facilities and transmission tower not available with legacy wired solutions.

The turn-key IP video surveillance solutions offers complete line of outdoor and indoor system including advance network video management software providing intelligent video surveillance. Utility company's security personnel may quickly and effectively search through previously recorded video footages using intelligent video search functionality. Counting objects along with 10 more analytics features makes video surveillance more effective than ever before. Please consult with an Inscape Data product or sales team for further information on the IP video surveillance product offering for the utility industry.

### **Moving Forward**

The next ten years will be an exciting one with big budgets from the utility sector and government grants to overhaul utility infrastructure, building new energy processing and production facilities, and provide better utility products to the end users. To find out more information on this article or utility product offering from Inscape Data Corporation, please visit our website at [www.inscapedata.com](http://www.inscapedata.com) or contact one of our product or sales representatives.

