Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: Water and Gas Sensors Applications
Date Submitted: 5 March 2011
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Re:

Abstract: Water and Gas Sensors Applications

Purpose: Response to Call for Applications

Water and Gas Sensors Applications

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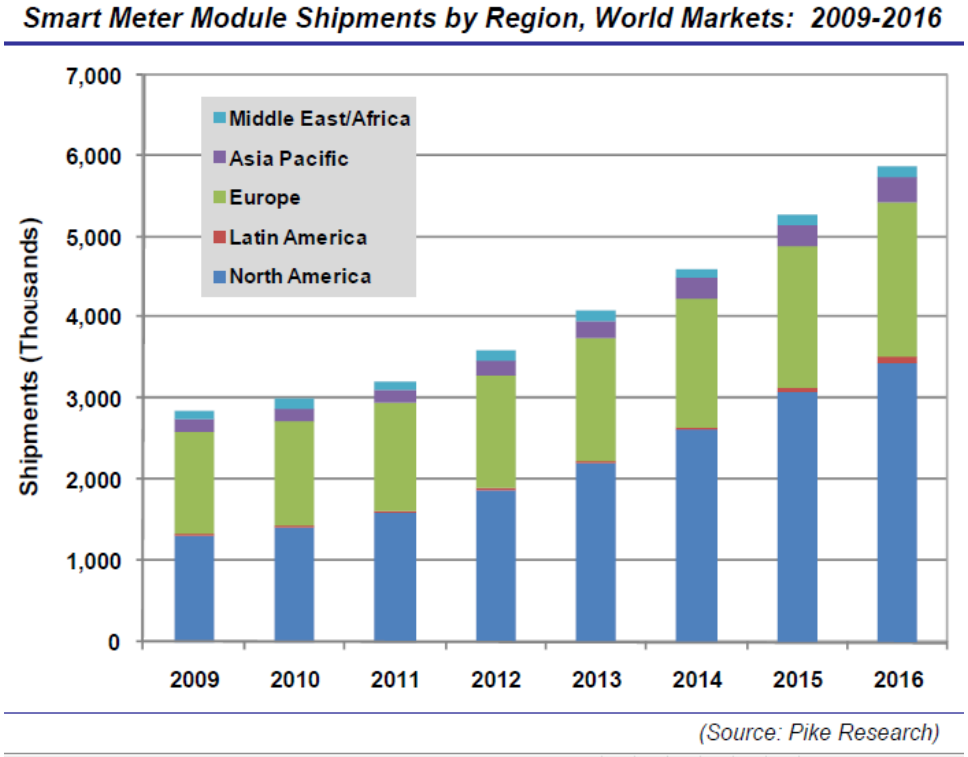
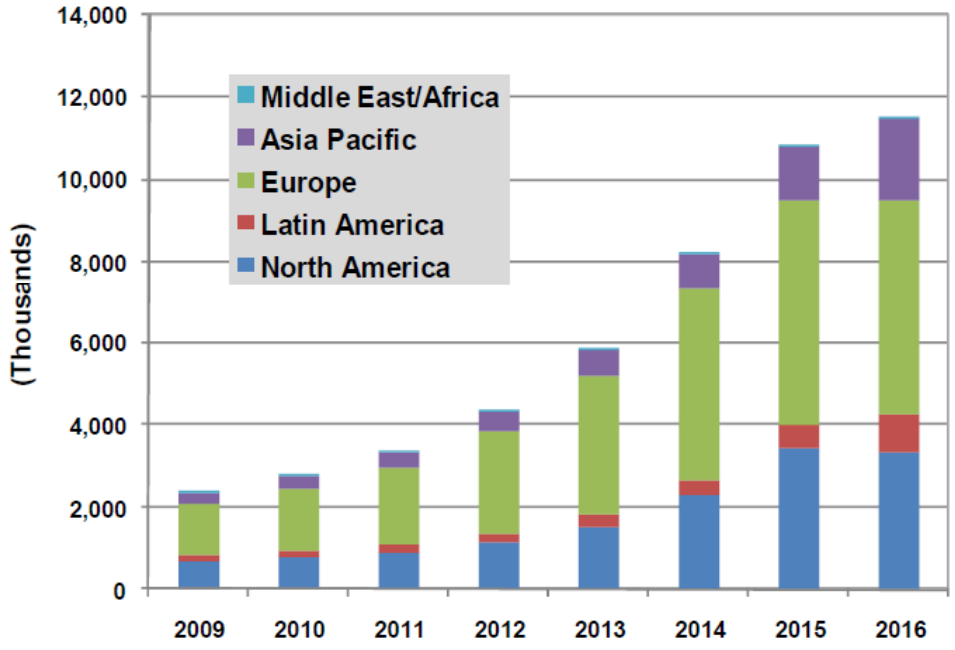
Smart Water Meter Demand



Pike Research reports that global investment in smart water meters will total $4.2 billion between 2010 and 2016. Annual market revenues will hit an average of $856 million by the end of 2016, showing a 110% increase over the 2010 market revenue.

Smart Gas Meters Demand

Smart Gas Meter Unit Shipments by Region, World Markets: 2009-2016

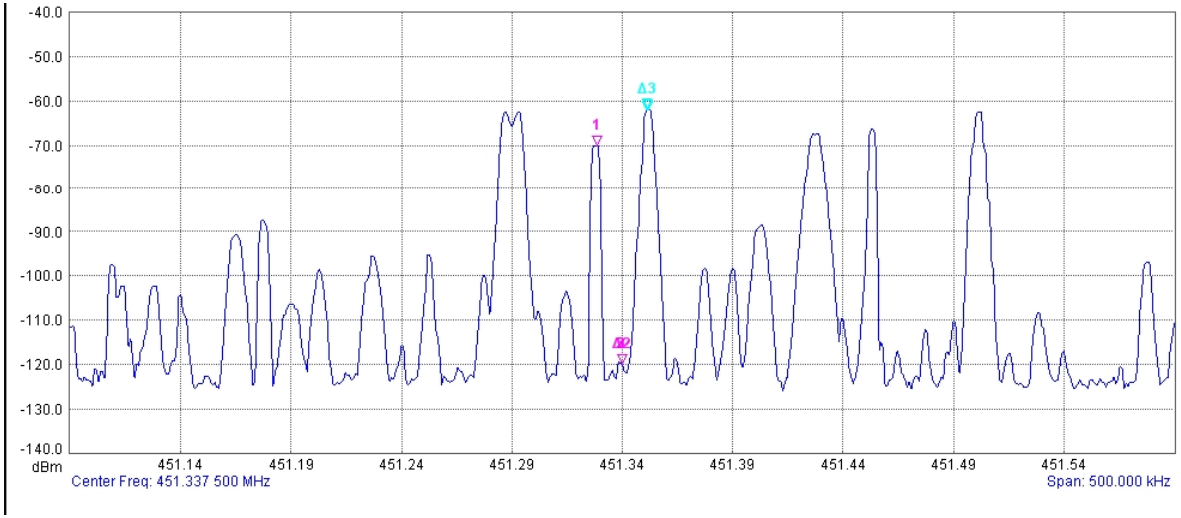


(Source: Pike Research)

As an example, Southern California Gas (SoCalGas), a Sempra company, was recently approved by the California Public Utility Commission (CPUC) to implement a $1.05 billion, 5.5 million meter AMI system in Southern California. This decision is groundbreaking in that SoCalGas is the largest gas utility in the United States and is a gas-only utility.

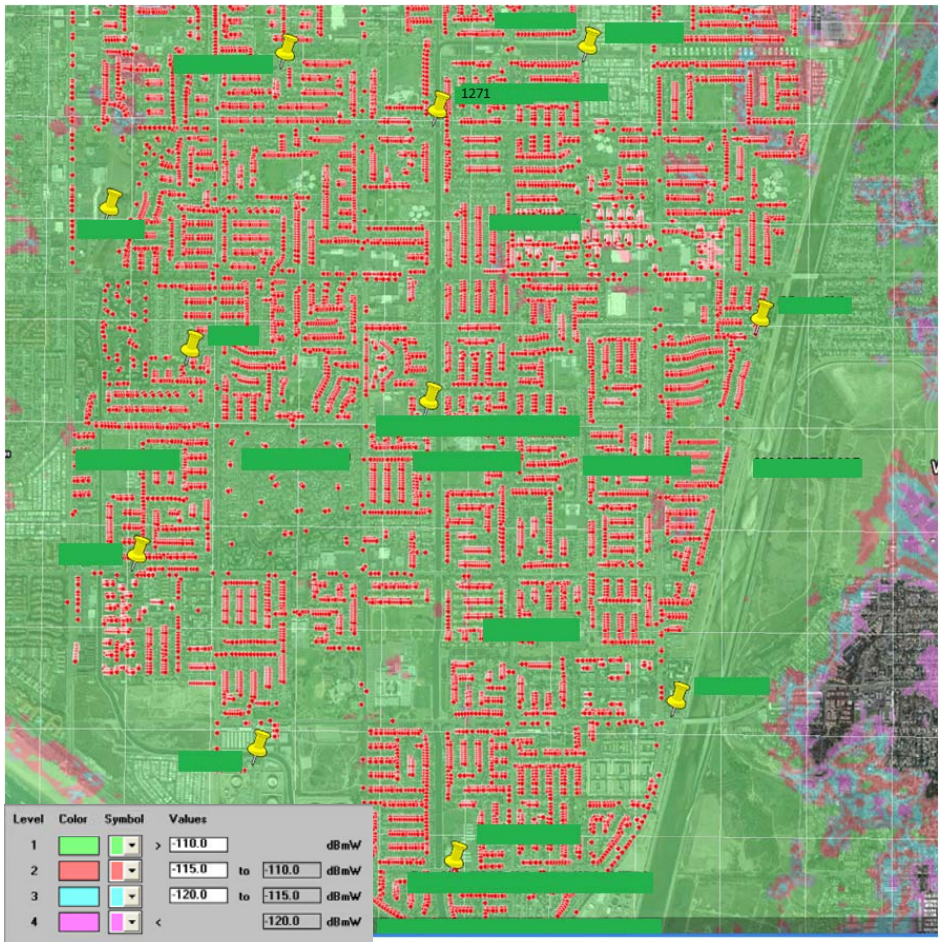
Smart Utility Endpoint Network

licensed band 5dbi antenna 30ft elevation



Typical real world licensed spectrum environment for data collectors receiving 10's of thousand of end points deployed in mid west metro environment

Typical Installation



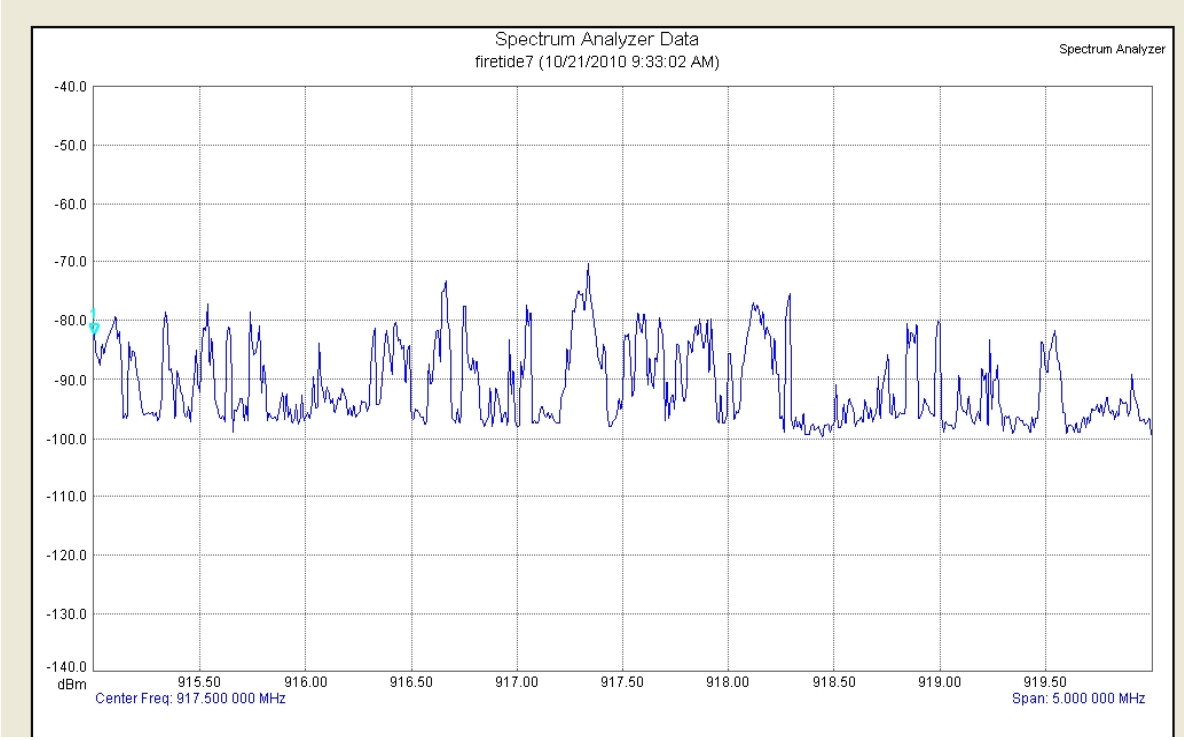
UHF licensed spectrum
Star topology easily supports 10,000 sub-surface battery powered end points

Data collectors typically provide 2-3 X data redundancy in order to provide data collection rates in excess of 98.5%

Data collectors utilize high BW backhaul capabilities to minimize the number of required take out points

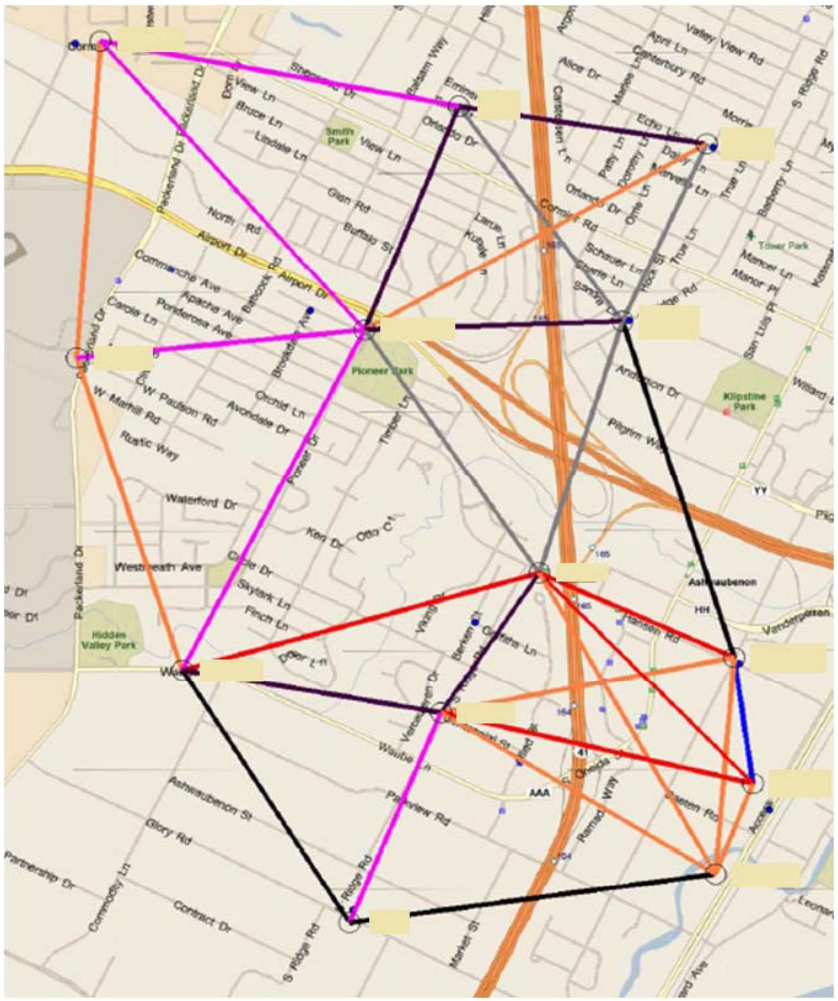
Smart Utility BH Network Data

ISM band 3 dBi antenna 30ft elevation



High BW Backhaul real world spectrum environment
used between collectors

Typical backhaul signal levels presented at receivers in real world configurations



Key Sensor Performance Expectations

- 20 year battery life from single use batteries
- 98.5 % data collection
- 4 daily reads providing hourly consumption reports
- All reads accurate within 1 second of GMT
- Interface support for all existing meter types
- Reliable sub-surface below grade performance
- Full FM Intrinsic safety regulatory compliance
- Small form factor non-intrusive enclosures
- Designs must support -40 to +85C and full immersion
- Mil Spec 810 compliance
- AES-256 Link Layer Security
- IP Network Support

Key Collector Performance Expectations

- Solar power non-AC-mains powered support
- Local Storage for 100,000 daily records
- All reads time stamped within 1 second of GMT
- Support identification and elimination redundant end point records
- State of the art RX selectivity and sensitivity
- Support for dual diversity and polarization antenna receiver designs
- Solar Power battery charging and load management
- Small form factor non-intrusive enclosures
- Designs must support -40 to +85C Industrial temp range
- Mil Spec 810 environmental compliance
- Full link level AES-256 and Authentication Support
- Full TCP IP network support

?Questions ?

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