ABOUT LEC

- 30 years in industrial automation, controls and engineering
- Staffed with Experienced Automation and IIoT Engineering professionals
- Process driven and highly scalable client engagement practices
- Establish National Sales, System Integration and Support Channels
- Unique industry skill sets to meet the needs of IIoT
- Globally recognized, award-winning IIoT Platform provider and developer

Transforming legacy SCADA systems with IIoT cloud technologies and cellular connectivity. Providing robust monitor and control technologies with the iQ Web SCADA Platform.
AGENDA

• State of the Water Industry Update
• Current Water/Wastewater Control & Monitoring Challenges
• Overcoming Water/Wastewater Control & Monitoring Challenges
• Examples: Common Deployment Challenges and Solutions
• Q & A
2017 AWWA Report Highlights

• The current health of the industry (i.e., soundness) as rated by all respondents was 4.3 on a scale of 1 to 7, where it was 4.5 in 2016; prior to this year, this soundness score has ranged from 4.5 to 4.9 since the survey began in 2004.

• The top five most important issues facing the water industry:
  1. Rehab and replacement of aging water and wastewater infrastructure (#1 in 2016)
  2. Financing for capital improvements (#2 in 2016)
  3. Long-term water supply availability (#4 in 2016)
  4. Public understanding of the value of water systems and services (#3 in 2016)
  5. Public understanding of the value of water resources (#5 in 2016)
30% of utility personnel reported their utilities are currently struggling to cover the full cost of providing services, including R&R and expansion needs, through customer rates and fees. This number jumps to 37% when respondents considered the full cost of service in the future. Notably, 12% of respondents felt that their utilities were currently not at all able to cover the full cost of providing service. These levels are very similar to those observed in recent years.

The most important future regulatory concerns were pharmaceuticals and hormones, security and preparedness (cyber, physical and emergency response), and nonpoint source pollution.
2017 AWWA Report Highlights

- Workforce issues continue to be a concern with “Aging workforce/anticipated retirements” rated as #12, “Talent attraction and retention” rated as #14, and “Certification and training” rated as #23 among the most important issues.

- It is now essential to incorporate technology that does not require SCADA engineers, third party consultants and service providers for operation while implementing cloud-based technologies that the next generation of operators understand and can support.
TOP CURRENT CHALLENGES

• Middle of the road industry health grade that continues to decline

• Lack of support (understanding of the needs and consequences), expertise and technical knowledge to make necessary rehab and replacement upgrades to existing infrastructure, systems and equipment

• Lack of funding and/or difficulty in finding funding to facilitate the procurement of critical control and monitoring technology upgrades
ADDITIONAL CHALLENGES

• Growing operational compliancy demands and related data needs
• Inadequate functionality of existing SCADA systems
• Aged, complex and disconnected communication networks
• High maintenance costs of current systems
• Demand and need for robust data security
ADDRESSING THE CHALLENGES

STEP 1
STEP 2
STEP 3
STEP 4
STEP 5
STEP 6
STEP 1

Self-Evaluation

• Conduct a self-site engineering technology audit assessment of current system…understand what you have in the field…retain an expert if necessary.
• Identify and define gaps and barriers
• LEC sample audit document
Determine If and Where Technology Upgrades are Needed

• How do I know when it is time to forklift older technologies?
  - Do they meet the current need?
  - Are replacement components readily available?
  - Are existing components still functional? PLC?
  - Do the existing components allow for expansion and further integration?
  - Is it expected that the existing components will be supported and available well into the future?
  - Compliance?

• How does this affect me?
• Do I have challenges?
Evaluate, Compare and Consider Available Solution Technologies

• How to leverage existing systems?
  - Use existing controls, communications, etc.?

• Cloud-Based vs Traditional Software
  - Will it work with our existing systems?

• Communications: Cellular, RF, Leased Line, Satellite, etc.
  - How will this integrate with existing systems?
STEP 4

Select Best-Fit Solution

- Make a decision
- Base your decision upon honest evaluation of needs and performance of evaluated technologies
- Consider the future…technology & manpower
Devise a Deployment Plan

• Rip & Replace or Stepped (phased) Approach?

• Establish a timeline

• Prioritize replacement and upgrades

• Be proactive instead of reactive in your response: minimize downtime and compliance issues
Establish a Budget

- How do we fund the project?
- Capital Project?
- Other funding sources: USDA, CDBG
- “As-a-Service?”
This program provides qualified applicants (not otherwise able to obtain commercial credit on reasonable terms) in eligible rural areas funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal and storm water drainage projects.

May be used to finance the acquisition, construction or improvement of:

- Drinking water sourcing, treatment, storage and distribution
- Sewer collection, transmission, treatment and disposal
- Solid waste collection, disposal and closure
- Storm water collection, transmission and disposal

Additional forms, resources and program information at [www.rd.usda.gov](http://www.rd.usda.gov).
COMMON DEPLOYMENT: SCADA RETROFIT-WATER/WASTEWATER

Challenges:
- Aged SCADA and communication systems
- Questionable reliability of old network
- High cost to upgrade
- Regulatory and internal demands for better management
- Lack of internal technical capabilities

Solutions:
- Updated with robust technology
- New and improved network infrastructure
- Costs effectiveness/reduction
- Simplified data visibility and control
- Highly reliable and sustainable
- Fine grained security controls
- Secure end-to-end communications
COMMON DEPLOYMENT: RESIDUAL CHLORINE MONITORING

Challenges:
• Real-time monitoring of residual chlorine
• Dependable Remote Fault Notification
• Access to Data/Trending
• Regulatory Compliance

Solutions:
• Fast Alarming/Alerting sent via SMS and Email
• Graphical and Granular access to system performance data
• Data available on any Web Enabled device
• Data available for regulatory compliance
COMMON DEPLOYMENT: LIFT STATION MONITORING

Challenges:
• Remote/Challenging locations
• Dependable remote fault notifications
• No revenue associated with collection
• Environmental impact of system failure
• Regulatory compliance

Solutions:
• 3G/LTE connectivity
• Rapid Alarming/Alerting sent via SMS and Email
• Simple and economical deployment
• Data logging and basic analytics
• Data available for regulatory compliance
COMMON DEPLOYMENT:
WELL PUMP CONTROL

Challenges:
• Reliable site-to-site controls
• Remote/Challenging locations
• Dependable remote fault notifications
• Regulatory compliance
• Remote troubleshooting
• Remote manual control

Solutions:
• Connectivity via 3G/LTE network
• Rapid Alarming/Alerts sent via SMS and email
• Data available for regulatory compliance
• Secure tunnel access for technicians
• iQ Web SCADA interface enabling manual control
COMMON DEPLOYMENT:
WATER TANK MONITORING AND CONTROL

Challenges:
• Reliable site-to-site controls
• Geography and typology
• Dependable remote fault notifications
• Regulatory compliance
• Remote troubleshooting
• Remote manual control

Solutions:
• Connectivity via 3G/LTE networks
• Rapid Alarming/Alerts sent via SMS and email
• Data available for regulatory compliance
• Secure tunnel access for technicians
• iQ Web SCADA interface enabling manual control
COMMON DEPLOYMENT: LINE PRESSURE MONITORING

Challenges:
• Remote locations
• Power availability
• Regulatory compliance
• Hydraulic data collection
• Portability of equipment

Solutions:
• Connectivity via 3G/LTE networks
• Solar and battery powered options
• Data logging and basic analytics
• Rapid Alarming/Alerts sent via SMS and email
COMMON DEPLOYMENT: VALVE MONITORING AND CONTROL

Challenges:
- Remote locations
- Power availability
- Regulatory compliance
- Remote manual control
- Open/closed status monitoring

Solutions:
- Connectivity via 3G/LTE networks
- Solar power option
- Data logging and basic analytics
- User interface enabling remote manual control and status monitoring
OPERATIONAL COST SAVINGS THROUGH TECHNOLOGY UPGRADES

• Reduce truck rolls for service, maintenance and emergencies through reliable remote monitor, control and alarming
• Increase efficiency, allow small workforce to be in more than one place at a time
• Control overuse/underuse of consumable products
• Reduce maintenance costs of monitoring assets and data networks by access to real-time data
• Simplify and streamline reporting needs through automated data gathering
• Integrating disparate systems into a single user interface
• Reduce monthly and annual licensing and connectivity fees
• Reduce need for third party engineering and support services
• Simplify network management through advanced SDN technologies
• Avoid costs associated with system malfunctions and delivery of unsafe product
HOW DO I GET STARTED?

1. Self Evaluation (LEC sample audit document)
2. Additions or Upgrades Needed?
3. Evaluate, Compare & Consider
4. Select Best-Fit Technology
5. Develop Deployment Plan
6. Develop a Budget
7. Initiate Project
CONTACT US ANYTIME!

Leaders in Industrial Automation
Control Engineering and
IIoT Enablement

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