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## The Grid Transformation Forum: Envisioning the 21st Century Grid

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For more than two decades now, utilities have been installing one-way meter reading systems, resulting in literally millions of endpoints – often referred to as ERTs (Encoder Receiver Transmitters) – installed all across North America, Latin America and in other parts of the world. ERT technology is still being utilized by many utilities and has a long-useful life. Rather than throw these away and start all over, or wait until they are completely depreciated, two companies have come together to deliver two-way Smart Grid functionality allowing utilities to continue to utilize ERT technology now and in the future.

**EET&D** : If we look back over the past two decades, utilities waited a long time for the ‘right’ automatic meter reading solution, eventually investing extensively in (mostly) one-way, drive-by AMR systems. But lately it has become increasingly apparent that two-way communications is quite likely to be a linchpin of the Smart Grid era. Understandably, a lot of utilities have no doubt been biting their nails over how to recoup future benefits from their earlier investments in the wake of this rapidly accelerating evolution to two-way communications as the cornerstone of AMI and other Smart Grid initiatives. But if I understand the Tantalus-Itron coalition correctly they now have reason to believe that their situation is not as bleak as it might have once appeared.

**Murray** : Yes, that’s absolutely correct. Twenty years ago, no one could have reasonably anticipated all of the technological changes that have taken place, especially in the closely intertwined areas of metering and communications. It’s really a whole new market landscape these days, and our desire to be part of the solution is at the heart of an exciting and still developing relationship with Itron that we feel will do just that.

**EET&D** : Can you share what precipitated this alliance?

**Murray** : First and foremost, we recognized that utilities need to intelligently scale their Smart Grid investments in such a way that operational goals could be met while creating a tangible return on their investments. That in itself established our primary objective of a joint offering that would more precisely serve their expectations of having access to economical, flexible, evolvable and powerful solutions.

**EET&D** : Mark, would you like to add anything to that?

**deVere-White** : Yes, I’d like to say that through joint problem solving and coordinated system design, we focused on meeting utilities’ business needs as much as their technical needs. Utilities need a way to ensure they are upgrading at the right pace but are doing so prudently and without needing to overhaul every single asset they own. So you could describe the Itron/Tantalus joint solution as a cost-effective asset management tool for utilities.

**EET&D** : You characterize this as an asset management tool. Perhaps you could elaborate a bit on what you mean by that, Mark...

**deVere-White** : Well, we recognized early on that our customers were making a strategic investment in their electric, water, and gas ERT technology and, that with the evolution from AMR to AMI, many utilities would have concerns that the useful life of the technology may be cut short. This partnership offers a solution to the challenge of migrating to a Smart Grid without cutting short the useful life of that technology. Now, any utility with an installed base

of Itron devices can overlay a Tantalus Smart Grid communications network to improve the value of its installed devices and ultimately deliver AMI as well as demand response or distributed automation. This capability provides affected utilities with the ability to leverage their installed base of ERTs into a broader Smart Grid strategy that delivers advanced functionality.

Moreover, this offering benefits those cooperative and public utilities already using Itron's nearly 40 million electricity meters and 20 million gas and water meters by offering a simple way to upgrade to Smart Grid without waiting for assets to depreciate.

**EET&D** : Are there other ways that this solution can bring cost and/or resource savings to utilities?

**deVere-White** : Among other benefits, the joint solution delivers immediate value to the public power and cooperative utility marketplace and provides a solid foundation upon which a truly 'smart' grid can be built. And coupled with the ability to detect revenue losses in the field and deliver real cost savings, it also allows utilities to lower their operational costs through capabilities such as remotely connecting and disconnecting service to reduce the number of truck rolls.

**EET&D** : We also hear a lot about 'Big Data' these days. How can utilities leverage the data produced by these upgraded solutions and turn it into useful information?

**deVere-White** : Metering and communication endpoint technologies bring a wealth of data that can be utilized for power quality monitoring and analysis and active demand response programs. Engaging consumers in conservation programs with online data presentation and energy management devices, as well as providing dynamic rates, direct load control and EV smart charging are all part of what we bring to the table with this solution.

**Murray** : Let me add that in addition to the asset management dimension that Mark has already described, combination utilities, in particular, will benefit by virtue of the fact that this communications solution supports meter reading for electric, water, gas and propane ERTs. And since municipal utilities tend to have at least water and electric components, the ability to deploy an integrated solution is of special importance to them. The joint solution enables those utilities to move forward with water and electric initiatives knowing they will be able to bring them into a unified, common system. Also, with the increasing significance and scarcity of water, utilities that can get more leverage from their networks will be better positioned for meeting those challenges going forward.

**EET&D** : Which of these functionalities seem to be of the most interest to utilities so far?

**Murray** : Currently deployed metering technology is already quite robust, so we're seeing an emphasis not on acquiring specific metering applications but on leveraging currently deployed applications effectively. The fact is that very few utilities are interested in adopting everything. Instead, they are focused on specific operational benefits and a tailored approach to Smart Grid challenges.

For example, some utilities require surgical deployments, as in the case of specialized use areas such as industrial parks or corporate campuses. Others are interested in deploying pre-paid metering systems or remote connect-disconnect using their existing ERTs. Another application we offer that utilities are starting to utilize is CVR – or Conservation Voltage Reduction, which allows utilities to manage their power supply costs better. Overall, utilities want to minimize their infrastructure investment and deliver value to their customers. They also want the ability to select these advanced functionalities a la carte rather than in generic – and often pricey – full deployments.

**EET&D** : Flexibility is another factor that most utilities say they want, especially when making substantial infrastructure investments like AMI. How does the joint solution address that need?

**Murray** : Flexibility is certainly another key area for which we are seeing a lot of demand. Utilities need a flexible on-ramp to the Smart Grid and value the ability to choose between multiple options or create a hybrid communications network of fiber and/or a wireless broadband network, based on their individual business priorities. This is especially important for utilities that are collaborating with telcos – an increasingly common phenomenon. For this reason, we prioritize evolvability and flexibility. Tantalus has already undertaken significant development efforts on developing Fiber-to-the-Home and multiple migratory WAN strategies. We believe that if you're making a 20- to 25-year investment, you need to be able to cost effectively evolve to a new network, if necessary.

**deVere-White** : The ability to incorporate ERT reading into the Tantalus network is another illustration of flexibility customers want and need to leverage those previous investments. By utilizing existing ERT readers, customers can deploy Demand Response and/or Load Control first, and start reaping the ROI from that before a broader deployment of smart metering. This allows them to do what makes sense, when it makes sense for their customers.

**EET&D** : What is the technological basis for the communications network offering?

**Murray** : The Tantalus network has a proven record of real-time, reliable command and control functionality in over 40 utility deployments and provides immediate two-way communication, allowing utilities to diagnose and correct problems faster and more accurately than any other solution. The platform utilizes fiber, 220MHz, 900MHz, WiFi, and cellular options. We are using the TUNet platform to build the integrated system for water, electric, and gas incorporating the ability to read existing ERTs, which will be available later this year. Notably, utilities will be able to phase in the integrated system over time if they choose and continue to make use of their existing metering software, which may already be integrated into other OMS, SCADA, or billing systems.

**EET&D** : How does this partnership fit in the broader scale of Smart Grid initiatives and help to move the industry forward?

**deVere-White** : For one thing, this partnership's international scope fits squarely within broader Smart Grid market trends. Reflecting the increasingly global demand for Smart Grid, we are focusing our joint efforts not only on the United States and Canada, but also on Mexico, Central America and the Caribbean. Overall, this partnership mirrors the industry evolution from AMR to pure AMI deployments to broader integrated Smart Grid deployments. Utilities are expanding their portfolios to include programs such as demand response or voltage regulation. I believe that by offering tailored solutions with the ability to leverage existing investments with minimal additional infrastructure investments, we are truly at the forefront of a trend toward more focused, more strategic, and more sustainable deployments of Smart Grid technologies.

**EET&D** : How does it appear that this relationship between Itron and Tantalus is being received by the industry so far?

**Murray** : Basically, we're offering utilities more choices and more options for their Smart Grid deployments, so since the announcement we've both been seeing a lot of customer discussions around their specific problems and how our joint team can help to resolve them. We're also working to optimize our behind-the-scenes processes in order to deliver value to our customers by working together seamlessly.

**deVere-White** : I agree with Eric and would characterize the response from the marketplace as overwhelmingly positive so far. Together, we are offering a highly innovative and flexible Smart Grid platform, designed specifically for public utilities and cooperatives. It's exciting for us to be able to provide an affordable path for electricity, water and gas utilities to effectively and economically transition and modernize their infrastructure.