



Discussing IT issues, from left to right, Chuck Bremer, Dave Harkness, Mike Carlson, Gene Zimon and Bob Arnett.

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ROUNDTABLES



Pursuit of Intelligence

CIOs PREPARE FOR UNCHARTED WATERS
BY WARREN CAUSEY

Utilities face unprecedented challenges engendered by fears of global warming, aging workforces, fuel costs and legal requirements to do things that in many cases may just not be possible, or at least not very easy. Increasingly, the executive suite is turning to chief information officers to solve many of these problems. Options include substituting technology for people in the field by automating grids; substituting demand response on a voluntary or even mandatory basis for hard-to-build generation; and using technological asset optimization to obtain the most from existing assets.

Bob Arnett
COBB ENERGY

Chuck Bremer
AMEREN

Mike Carlson
XCEL ENERGY

Dave Harkness
PNM RESOURCES

Gene Zimon
NSTAR

Utility CIOs are in the unenviable position of having produced miracles and marvels in the past. Now, there is an extremely pressing need for even more. To explore a variety of pressing issues, *EnergyBiz* recently sat down with five CIOs representing four of the largest investor-owned utilities in the country and the affiliate of one of the largest electric membership cooperatives. Their comments follow, edited for style and length.

Getting Information to the decision makers

ENERGYBIZ Utilities nationwide are anticipating a massive spending boost to build new generation, transmission and distribution. What are you doing to provide the utility leadership

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with the type of business information that they will need to justify, quantify and place all this anticipated spending?

HARKNESS In addition to making strides in business analytics, we've developed a more capabilities around portfolio management to allow the different business units to actually manage a

made as to what level of investment we want to make. After that we figure out how much we want to invest in facilities and IT, and we have a plan. It's built into our culture now that we have to invest in maintenance of IT, similar to what we do with our distribution network.

We have a fairly robust data-gathering system.

lot of their portfolio – where they're going to go. That's not just tracking current-year activities, but also looking at spending from a future perspective. We've stepped up and done a better job of projecting what our total spend is going to be, what that business value will be. There's also been a lot of work around our governance processes so that the corporation can make better technology decisions going forward.

ZIMON From a capital allocations standpoint, we have a five-year capital plan, which breaks down into a lot more detail. It includes the big expenditures in the transmission and distribution infrastructure. We determine what that need is, and that's based on fairly sophisticated risk-based analysis. We look at history of the performance of the various components and then a decision is



Dave Harkness

ENERGYBIZ There's a great deal of emphasis now being placed on collecting real-time data from the grid. How much progress are you making?

BREMER We have a fairly robust data gathering system. We were an early adapter of AMR and have more than a million meters automated. We have those built into our outage-management systems and our work-management systems. What we don't have at this point is the communication back to the device from a load controller or management perspective. With the smart grid and AMI versus AMR getting more and more attention and the carbon issues and conservation in general, this is an area that is going to accelerate everybody's focus including ours.

ARNETT The challenge I'll have is getting my business intelligence team to get outside of their comfort zone in the finance and customer service area and go across the street to the operations data and start pulling some of that real-time data and thinking outside the box. They need to work with that group so we can really start doing some good analytics and build a quality data warehouse to mine that data.

Dealing with the new generation constraints

ENERGYBIZ What kind of IT challenge does distributed generation present?

BREMER I don't know if that's going to be a problem or not. I guess it will depend on who is controlling the distributed generation, where it is, how it plays into the RTO market and what kind of information is needed back and forth. Some of the issues associated with netting out your metering, your revenue and expenses are things that our systems today don't do a real good job managing. So we'll have to come to grips with that as an issue.

ZIMON It's going to be a significant impact, depending on how it plays out. We're seeing significant growth in distributed genera-

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tion in our territory. There is potential legislation to promote net metering and there are a number of ways you can do net metering. But if there's a different rate for "in" versus "out" and that means your system is going to have to measure two different rates, your meters are going to have to be updated to do that. And your billing is going to have to change because you'd have to bill for two cycles. So I see significant impact on your billing system and your receiving system as well as your rate structure. The other area which concerns me is if you have a lot of distributed generation, what does it do to the way you manage the network? How do you connect those and manage those in your network,

You really need to be open architecturally to allow for just about any possibility out there.

which creates some challenges? You'll figure out where your gaps are and develop more of a longer-term strategy to evolve to that longer-term place.

HARKNESS I think the biggest thing that we can do to prepare for it is look at the infrastructure that we have in place from an IT perspective, and make sure we're developing open-architected capabilities because you really don't know where the legislation is going to take you. You really need to be open architecturally to allow for just about any possibility out there.

CARLSON If it's fixed distributed generation, that's a more manageable model. We're tending to look at distributed generation as being at least partially mobile. Not only do you have to be able to manage it from wherever it's sitting on the grid, but you're also going to have to integrate it into billing in the control side of it. If you assume a charge/discharge cycle, you obviously are going to want to be charging on the low end of the demand curve. So I think it's going to be a lot more complicated at the end of the day with both the communications model and the logic structures.



Chuck Bremer



Bob Arnett

The owners of these things are not going to go turn a switch on and off. When we need the generation, we're going to have to be able to signal control, so communications is big and logic is big.

ENERGYBIZ Given the recent cancellations of a lot of coal-fired plants, do you see a need to solve the problems with distributed generation on an accelerated basis?

CARLSON I don't know if these things are solved with distributed generation. They're solved with a combination of things. Demand-side management is a big initiative and I think we can contribute to it if we can find a way for it to be more elegant, less of a slam-it-on, slam-it-off approach. We have got a lot of wind on the system. Wind seems to be the biggest play right now from an investment standpoint. It just presents a problem in whether it is going to be blowing when the demand is? So battery technologies are a big piece of it or we're expecting them to be a big piece of it down the road. Distributed generation is probably more of a vision as opposed to practical right now, from what we're seeing.

HARKNESS We'll have enough time on the distributed generation side. I see us needing to be prepared for a combination of solutions. I think again PNM has a large investment on the wind side, but we're also getting our feet wet on the solar side as well as the biomass side. I know we've been looking into more of the storage issues as well. We're going to have time. I don't see the industry making the same mistake it did before when

everybody put all their eggs into the natural gas side of the house. You're going to see a lot better diversification of sourcing on the generation side.

Technological breakthroughs

ENERGYBIZ What will be the next great technological breakthrough?

CARLSON Meshing the communications infrastructure in the most cost-effective way to pull all this data together is critical. It's still not a standard that we can just go pick off the shelf. Whether it's a breakthrough, or whether it's just somebody cobbling together what's already there and then offering it so we're not becoming telecom providers to ourselves is one. And the second is more of an automated, neural grid. It's providing that data set to a decision maker and that's why we get day-ahead and 12 hours, a real time model of interactive decision making.

BREMER I'd start with communications. When I look at the main pain points of my budget right now and the drivers for work, communications is clearly number one. And that is not just from the mobile workforce. As we build out the AMI types of capabilities and SCADAs, we're worried about security and real-time data and not losing data. That's going to continue to be a problem, especially in the rural areas where you don't really have a strong backbone by the current providers. We need to be able to get more flexibility in our applications and the ability to do upgrades and additions and modifications without taking entire systems down. We're so tied together today to try to get the efficiencies on the end processes that if you want to do anything to any piece of the system, it almost feels like you have to get the entire company to agree to let you take a system out of service. ☹

Mike Carlson



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