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The next time you’re facing a complex ETRM project that has to be executed with intelligence, speed and precision, contact Structure. We’re your best choice – hands down! Email Angela Ryan at angela.ryan@thestructuregroup.com.
They are being called upon to develop a new fleet of nuclear plants — the first such projects in decades. They are being asked to speedily deploy technologies that can address the most complex environmental challenges mankind has ever faced. They are tasked with the job of explaining some difficult choices to political leaders preoccupied with a far-off war, health care concerns and the slow boil of an ongoing terrorist threat.

Utility executives now face arguably the hardest checklist of tasks of anyone in corporate America. That was the background of the second annual EnergyBiz Executive Summit. We talked with nine captains of enterprises that collectively account for almost one-quarter of the
market capitalization of the investor-owned electric utility industry. They represent companies of all sizes and serve customers across the country. We are honored to present their comments, edited for style and length, in the following article.

TIME TO BUILD

Utilities in 25 years will need 258 gigawatts of new generation that will cost $412 billion, according to EEI. What will that generation fleet look like?

What it looks like over the next 10 years will be different than what it’ll look like in the back half of that period. We will all be surprised at the number of gas plants that are going to get built over the next five to eight years. You’ve seen a number of companies try to build coal plants that ran into really tough opposition. There will be a strong emphasis on energy efficiency and continued interest in some states in a renewable portfolio. Long term, you’ll see new coal plants in the mix again. That is really dependent on R&D and how fast we can accelerate carbon capture.

I hope that conservation, energy efficiency and demand-side management have a bigger impact and we don’t need as much as we think.

Transmission is being built now at a rate not seen in 30 years, with $10 billion a year being invested. Is this work being done efficiently?

One of the challenges that we face is getting a series of states to all see the benefits of having a major transmission line built. At least in the West, that’s what we really need to focus on. I’m not sure that the regulatory side is as well coordinated as we need to make it.

We just received approval for 90 miles of transmission, and it went very successfully through the state regulatory process. The big issue for us will be getting transmission built out to the western part of Kansas to get some of the renewable energy into different areas of the country. That will be very expensive.

Who is going to pay for it?

We may have to look at spreading that cost around throughout the whole footprint.

We have a pretty long-standing principle that the people who benefit from transmission ought to pay for the transmission.

What financial strains will be created on utilities by the massive spending ahead?

If you look at the past five years, many utilities were in the position of being able to finance our construction programs from internal cash. That completely reverses over the next five years. We will have a construction budget about two and half times what it was over the past five years, and a much heavier reliance on equity and debt financing. The commodity costs for the things that we use in construction are going up along with interest rates. That will make the debt more expensive. As equity prices go down, we’re going to have to issue more stock just to get the same amount of funds raised. That’s going to be a challenge.

Today, the net plant in our industry is roughly $750 billion, according to a recent study. Over the next 15 years, our investment in generation, distribution and transmission is going to be roughly $900 billion in 2006 dollars.

That does not include any carbon-related investment.

Right. It will take at least 15 years to really get carbon capture and storage. So that’s huge. If you’re going to enable energy efficiency, you have to move from an analog to a digital grid with new transformers and new meters capable of two-way communication. The thing that really knocks it out of the park is the generation build-out. Between 2000 and 2004, 70 percent of all the generation in this country was built by independent power producers. Today, more than 70 percent of the new generation is being built by utilities. Over the next decade, Duke Energy is going to spend between $12 billion and $15 billion. We’ve got to find a way to have the dividend tax reduc-
When CEOs from utilities across the country are asked to share what they see on the road ahead, they invariably cite a changing business landscape rife with challenges. They are under pressure to provide reliable electrical service to growing communities while balancing supply with demand and satisfying existing and emerging environmental regulations. Technology can help them meet these challenges. Consider, for example, the area of residential metering. Many utilities are studying how to make metering more efficient, and some have begun replacing their conventional grid and meter infrastructure with “smart grids” and “smart meters” based on improved communications technology and advanced metering infrastructure (AMI) devices.

Adopting AMI, however, should not force utilities to completely change the way they do business. If anything, moving and reorganizing crucial processes and data to suit new technology would be time-consuming and inefficient. Instead, utilities can combine the advantages of enterprise software with AMI technology to fully realize the benefits AMI has to offer.

THE NEED FOR INTEGRATED ENTERPRISE SOLUTIONS

As the momentum for AMI has grown, utilities have implemented different components of the technology, undertaking these projects in a piecemeal, disconnected fashion. For example, some organizations have installed smart-meter field devices and in-home devices without having the right IT infrastructure and software in place to handle the data these devices provide—or worse yet, without giving much thought to the back-office functions and applications that depend upon this data. Using enterprise solutions, utilities can move beyond the silo approach to change and seamlessly connect AMI with business applications. This move does not require process changes or demand new processes. And perhaps more important, it can be accomplished while allowing data to remain in its original environment. This limits the need for costly interfaces and extra layers of technology.

By connecting and coordinating AMI devices and technology with enterprise applications, utilities can automate more processes, reduce errors and costs, and increase business efficiency and effectiveness. For example, a failing meter can signal the software to generate a service order automatically.

Consider the vital customer call center and the customer portal. Integrated AMI technology helps the customer service staff provide faster and smarter responses, facilitated by real-time data that call-center personnel can easily access to resolve queries. And self-service portals provide customers secure access to personal account data and supporting material to help educate them about their energy use. These functions improve customer experience and satisfaction while reducing utility costs and increasing efficiency.

Integrated demand-response participation enables utility customers to join voluntary programs to control consumption and use energy more wisely. With these programs, automatic controls curtail energy use at peak times, helping reduce customers’ bills and conserve energy. This in turn reduces the need to site, fund, and build new facilities. Outcomes like these illustrate the true promise and potential of AMI technology—a technology that ultimately benefits the consumer, the environment, and the power grid itself.

BENEFITS TO YOUR BUSINESS

By combining AMI technologies with the right enterprise software, you can take control of AMI technology and harness its potential benefits, simplifying a complex situation and enabling you to own your business processes and data, lower total cost of ownership, and mitigate risk.

For more information please contact Kevin Walsh by phone at +1 978-930-1186 or e-mail him at kevin.walsh@sap.com.

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Who’s to blame for that ambiguity?

I don’t think we’ve done particularly well in this country developing well-structured, national energy and environmental policy. We tend to do it piecemeal, and those of us in the industry end up with our eyes crossed wondering exactly what it is we have to do instead of guess what we have to do. When we’re looking at spending the kind of capital that Jim described, to do it against the backdrop of ambiguity that we have in this country is just a shame.

Kevin Burke, Consolidated Edison

RATCLIFFE

I don’t think it’s a question of availability of capital, because the market is flush with capital. The question is the return of on the capital and the recovery of the capital. It’s a less risky proposition if you still operate a vertically integrated business.

Can we get it all done? There’s just a limited amount of labor that’s out there.

We’ve got two coal plants we want to build, about 600 megawatts of wind and we’re retrofitting everything on the planet. For us, it’s about a $4 billion capital spend over the next seven years and that’s a fortune for a company our size. We would all like to know what the game is so that we actually knew what we had to do instead of guess what we have to do. When we’re looking at the amount of labor that’s out there.

A NEW NUCLEAR ERA DAWNS

Federal regulators this fall anticipate receiving 30 new license applications for nuclear power plants. Do you expect opposition to start surfacing?

Well, if history is any guide the opposition will certainly be there. But one thing that has changed over the last 20 years is that the public acceptance of nuclear power is higher than it has ever been in my career.

We need to tie nuclear to the climate law. If we let a new climate law go into effect without getting the right legislative action on nuclear, we’ll never get the right legislative action at all.

Do we have the workforce that’s trained to be able to construct and operate new facilities? Some universities are starting to put together more aggressive programs on the nuclear side. Our industry has to really partner with them. We’re going to have to operate these things, and we don’t have the workforce today.

We’re in better shape though, Jeff, than we were when we started in the 1960s and 1970s in terms of having the infrastructure and the ability. Nuclear represents 20 percent of all the electricity produced in the United States today. By 2030, if it’s going to maintain the same share, we have to build 35 plants. If we’re going to reduce our emissions of CO₂ to the 1990 level, we’re going to need 55 to 58 plants built between now and 2030. That’s an enormous task.

Waste disposal has to get resolved if we’re going to add that many nuclear plants.

If we don’t solve nuclear waste disposal as part of planning, shame on us as a nation because if we don’t close the cycle in some fashion, we’ll never close it.

That’s been a problem for some time. How can this industry at long last solve it?

We have to step back and revisit the whole idea of reprocessing. It’s expensive and it’s going to take a couple of decades to evolve. It’s interesting that the Russians are going to Third World countries, telling them they will take the spent fuel back. The French reprocess it. We really need to start thinking through a reprocessing strategy.
I agree totally. It’s a terrible indictment that we would send our spent fuel internationally to get it reprocessed. Why can’t we reprocess it in this country?

Something has to be done. I am a little leery about continuing to pound our heads against the Yucca Mountain issue. We probably will need to have five or six regional storage facilities that are going to be above ground. I’m not saying give up on Yucca Mountain, but we need an interim arrangement so we can move some of the material off of our facilities and onto a federal facility. It has taken the Japanese 15 years to develop reprocessing technology. Should it take us that long? Absolutely not. Will it? My guess is it will because of the political processes that we’ll have to go through.

We need this national conversation now.

Absolutely.

Are you optimistic that the United States can develop a coherent strategy for nuclear power as well as all of the other issues we have just discussed?

It will never happen. Just reflect on our conversation, which is outstanding. The sheer enormity of our conversation is just breathtaking. We don’t seem to be able as a society to agree on carbon, renewable portfolio standards and development of a national transmission infrastructure.

One way our country deals with stunning challenges is the presidential election cycle. How important do you think the 2008 presidential campaign will be in shaping this nation’s energy future?

The politics are certainly important and interesting. But they don’t change the fundamentals of what we’re dealing with. I get pretty pessimistic when I spend a week in Washington. When you go there and you understand the enormity of these issues, the complexity of these issues and the absolute... lack of...

...leadership in terms of an ability to see long term and come together on a bipartisan basis for the benefit of the country, it’s not very encouraging. It puts us back into a mode of making the best decisions we can without certainty. I don’t think the election changes the complexity of the issues. Even with a new president, sure, there’ll be some influence one way or the other, but it won’t change the difficulty of getting good policy for the long-term benefit of this country.
Politicians operate within a four-year cycle. We build power plants that last 50 years.

Different time frames. The voters are not looking for strong point of view on energy and environmental issues, except on the margin, and for the most part they don’t envision that they have a crisis to deal with.

The tactics that we may use with one administration versus another are going to be different, but the fundamental economics are what we’re going to have to deal with. We just need to keep doing as much on the awareness education front as we possibly can.

The elected representatives have so many issues on the table. It would be a challenge for all of us in this room to come up with one solution. It’s even a greater challenge for people in the state legislatures or in Washington. They don’t have the time to spend on these issues that they deserve.

Dennis, you’re in Washington. What is your analysis? I’m immune to the frustration because I see it every day. In addition to the inaction at the federal level, the states are often ill informed. They’re making decisions for emotional or political reasons and not based on economics. We’re seeing it in the small state of Delaware requiring us to build or to buy 600 megawatts of wind power to supply a 400-megawatt load because of environmental reasons. The District of Columbia has its renewable portfolio. There’s a lot of wind in the district but I don’t think we can harness it. (Laughter) I really am much more concerned, operating in five states, seeing individual states each take actions which collectively become extremely uneconomical, I’m much more concerned about what happens on the state level than I am the federal.

Let’s turn to carbon sequestration. Is it going to be available when everybody hopes it will be?

It is an enormous challenge that our country hasn’t really wrapped its head around. Can we really take it to scale? We’ve got years to go to perfect how we’re going to actually store carbon dioxide and build the transportation infrastructure and determine what role the states will have versus the federal government. We have to move more quickly.

We’re quite a ways down the road on studying IGCC, integrated gasification combined cycle generation, with carbon sequestration. We’ve done a lot of the geology work that needs to be done in Colorado. The technology is there. But the costs are something that I don’t think most people are ready to bear. It’s going to be very, very expensive.

But, you know, we have to have a policy that keeps coal in the mix and allows it to grow as the generation pie gets bigger in this country. Some have left the impression in Congress that carbon capture and sequestration are done. It’s technically possible, but it’s not commercially scaled. My fear is that Congress will create a carbon cap and trade program that is based on carbon capture and sequestration technology that is 15 years out. That would be a huge mistake.

Is carbon cap and trading imminent in the United States?

We will end up with a cap-and-trade system. The question is when and how will it be structured. I don’t think enough people understand the complexity of these systems. I would be surprised if there is a system in place before 2012.

2012 would be the very earliest. It took five years to get the SO2 trading system in place. 2012 is a compelling date because that’s the end of the Kyoto Protocol. I worry most about the allocation of allowances. It’s not going to be easy at all for those of us who are very dependent on coal, and 85 percent of our generation is fueled by coal. The cost could be terrific for our customers if we don’t get a reasonable allocation of allowances.

One of the big issues is going to be whether the program focuses on particular industries, like the utility industry, or whether it is economy wide. That’s going to be a very significant issue for us.

And if it is economy wide, which it should be, it adds to the complexity of defining the regime, and implementing the regime.

How much are we going to get versus the autos?

At the risk of making it more complex, we need to keep an eye on the worldwide framework on climate to make sure we’re synced up with what’s going on around the world. This is particularly true with respect to China, India, Brazil and the EU.
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EMBRACING RENEWABLES

Almost half the states have renewable energy portfolio standards now. Minnesota wants 30 percent of its power from renewable sources of electricity. Is that doable?

Kelly We have to do it by 2020. We’ll do it. We’re a part of the Midwest Independent System Operator, MISO, up in Minnesota and we can lean on the system for peaking plants to back us up. We’re hooked right into North Dakota, which is the windiest state. South Dakota is number three. Minnesota is about eighth and Colorado’s ninth. We’re very fortunate geographically. By the end of 2007 we’ll have twice as much wind as we had at the end of 2006.

Will there be a national renewable portfolio standard?

Kelly It looks like it is coming.

Rogers There are some very difficult ongoing discussions on Capitol Hill right now with respect to this. In the parts of Southeast where we’re located, and in the Midwest, wind is just not an option. When you look at the renewables in this country, 85 percent have been wind. The more advanced and thoughtful renewable portfolio proposals include some component of energy efficiency.

Burke In New York when they set the standards and set the goals, they included the existing hydroelectric plants. That was a significant addition to the renewable portfolio.

Climate change. It is the defining issue for our industry for the next decade or two and maybe longer.

Gary Rainwater, Ameren

That’s the only thing I’ve heard of that New York regulation I want. (Laughter)

Rogers Con Edison has placed a turbine in the East River. How’s that working out?

Burke The East River flows pretty fast with the tides. It’s a beginning R&D project that’s going to be expanding. The capacity factor is fairly low.

BIGGEST TESTS AHEAD

What is the biggest challenge facing utilities?

Rainwater Climate change. It is the defining issue for our industry for the next decade or two and maybe longer. It’s the one issue out there that can change the way that we do things fundamentally.

Burke Looking at the customers and their evolving needs. We’re going to do that with advanced metering, giving them more control over use of energy.

Harvey To get the country and its citizens to recognize that they are on the cusp of an enormous increase in the cost of energy that will make any past experiences we’ve had look modest in comparison.

Kelly Balance is going to be one of the major problems, between the customers, the shareholders and the environment. The costs are going to be outrageous.

Wraase Prices are the biggest hurdle. How can we convince our customers that prices are fair and reasonable?

Ratcliffe Maintaining reliable, affordable electricity that our customers deserve and have grown to appreciate.

Rogers Climate, customers, reliability and price increases.

Sterba One, Jim, one! (Laughter) But at the end of the day getting the balance right among our stakeholders is really about having a really far-reaching educational program for all of them. Education is the first step to getting a balanced outcome.

Sterba The value to the customer has got to be greater than the price that they pay, which has got to be greater than the cost that we incur. Our focus has got to shift to moving more toward the value side. We know price is going up.

Bill, as the newest CEO at the table, you get the last word.

Moore The environment is affecting all of our decisions going forward. We need to be nimble and flexible. We have to make decisions for the long term that help us get to where we need to be moving forward. We’re going to be flexible and take advantage of what comes along.
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