The Energy Value Chain

Robert B. Catell

The Advanced Energy Center at Stony Brook University

An Interview with Robert B. Catell, Chairman, Advanced Energy Research and Technology Center (AERTC)

EDITORS' NOTE *Bob Catell joined Brooklyn Union Gas Company (later merged into KeySpan Corporation) in 1958. His rise through the company's ranks culminated in his appointment as President and CEO in 1991 and Chairman and CEO in 1996. A registered professional engineer, Catell assumed his current post upon the acquisition of KeySpan by National Grid in August 2007. He earned his bachelor's and master's degrees in mechanical engineering at the City College of New York.*

ORGANIZATION BRIEF *The Advanced Energy Center (www.aertc.org; AERTC) is a true partnership of academic institutions, research institutions, energy providers, and industrial corporations whose mission is innovative energy research, education and technology deployment with a focus on efficiency, conservation, renewable energy, and nanotechnology applications for new and novel sources of energy.*

How did AERTC develop and what is the vision for the entity?

The concept for the energy center started five years ago when I, in collaboration with the Stony Brook Dean of the College of Engineering and Applied Sciences, Yacov Shamash, felt there ought to be an entity created that was similar to the College of Nanoscale Science and Engineering at Albany State University, but that focused on energy. Our idea was to have an energy research center that focused on the energy value chain, starting with generation and going down to the customer.

It encourages research to develop new technologies that could eventually be commercialized and create business and jobs in the energy sector.

How has the process developed and what stage is the center at now?

We started by talking to a lot of the interested parties in business, in the industry, and in the political sector, and it became obvious that the energy field presented some great opportunities to develop technologies that could solve our energy problems from both an environmental and an efficiency standpoint. Getting to where we are today with a beautiful platinum LEED-certified building in the Research and Development Park campus at Stony Brook University took a lot of hard work.

Is it important to focus on specific areas in order to have impact?

We will do research in every aspect of energy, starting with generation, transmission, and distribution, and getting down to the customer. But our particular niche is the energy delivery grid – what a lot of people refer to as the Smart grid.

How important has it been to build partnerships with business and the public sector?

It has been critical for a few reasons. When we started out, we were seeking state funding and we were eventually able to get $45 million from the state to build the building.

In order to secure this funding, we had to demonstrate that we had a coalition. We started by creating an advisory board that I chair, with representatives from the utility sector, large energy companies, small companies, as well as from the academic community. That gave us the structure we needed to support the State capital investment, which was used to build the state of the art, platinum LEED-certified Advanced Energy Center facility.

Is there an effective awareness about the impact of energy on New York State's economic challenges?

One of our biggest challenges is educating the general public on energy and the important role that energy plays in economic development, and in our quality of life. People are generally aware of the issues of climate change or global warming, as well as our dependency on imported oil for creating our power, and that we need to do things to clean up the environment. But people don't focus on the solutions. The general public has become accustomed to lights coming on when they flip a switch, tuning in to their favorite shows and sporting events on television, and being able to enjoy a cold refreshment from the refrigerator; in general, the only time people think about energy is when it's not there to serve them.

As an energy industry member working in academia, I believe we have an opportunity and a responsibility to educate the public on the need to improve our energy delivery infrastructure.

How will you make sure the research at the center will drive action?

Part of that will come from public education. Another part will come from demonstrating that the new technologies that have been developed at the Energy Center will improve the reliability and security of our energy supply and reduce our dependence on fossil fuels, particularly imported oil. We have a great deal of natural gas, both domestically and worldwide, which can be essential in solving our problems long term.

We need to create awareness that there are alternatives; that there is no one "silver bullet" to solve our energy problems. We have to look at renewables, solar, and wind – we need to combine those options with the development of new technologies and the use of natural gas, and fully develop a portfolio of solutions.

What role should nuclear play and how do you reassure the public of its safety?

Nuclear energy needs to be part of the solution. Unfortunately, the terrible disaster that happened in Japan has raised concerns about the future of nuclear power. Some countries have even said that they're discontinuing nuclear power long term, which is shortsighted. What happened in Japan was deeply tragic and nuclear power will suffer a setback for some time until we can reassure the public that it is safe. We can and should learn from the Fukushima nuclear accident. It will be challenging to educate the public that nuclear power is safe, but it is incumbent upon the leadership of the country to take on that challenge.

Is it fair for consumers to feel that new technologies will bring costs down?

There are two sides to that equation: initially, the cost of development of some of the new technologies and upgrading the energy delivery system will put some pressure on rates; it is impossible to do those things without spending money related to a front-end cost.

In turn, developing new technologies and making the energy delivery grid more efficient will result in lower costs long term. The front-end investment will enable the industry to provide a more reliable, secure, and economical energy mix down the road.

What drives the passion that you have shown in this role?

Today, there are more opportunities to make an impact and affect real change than ever before. I see a bright future and it will be nice to look back someday and say that I made a positive contribution while serving the utility industry for 50 years, and that I was able to contribute in some way toward helping our country solve its energy problems long term. ●