



NRC NEWS

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Newton's First Law of Physics

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During the almost nine years that I have spent on the Nuclear Regulatory Commission, I am frequently asked how it was that I came to become a Commissioner. The simple answer is that I was working as an attorney on the Senate Environment and Public Works Committee, and I happened to be in the right place at the right time when they needed a Republican nominee for the Commission. Invariably, people then ask me what kind of training I undertook to become a Commissioner, which I typically answer that I have a background in science...political science.

Now, given that backdrop, I am sure that it would strike many of you as odd that someone of my pedigree would use as the title of my speech, "Newton's First Law of Physics." Well, the answer to that query is quite straightforward. Newton's First Law of Physics states that unless acted upon by an unbalanced force, an object at rest tends to stay at rest and an object in motion tends to stay in motion with the same speed and in the same direction. Over the last 27 years, the nuclear industry has seen an application of the latter part of that theory, particularly as it relates to the growth of nuclear power in our country. With the "unbalanced force" resulting from Three Mile Island, efforts to order and build new nuclear power stations came to a standstill, and nothing seemed to be able to change that status.

Malcolm Gladwell, in his best selling book, *The Tipping Point*, discusses the phenomena where events can align, and a single, sometimes seemingly simple event takes place that causes a major change in trajectory or outcome. I think Gladwell's theory is very relevant to what has happened to nuclear power in the United States. The need for baseload power in the mid-part of the next decade, dramatically increasing prices for carbon based fuels, significant domestic economic expansion, worries about energy security, decades of safe nuclear operation in the U.S., and an increasing concern about the global environmental impact of the use of carbon, all provided the perfect environment for a national reassessment about the use of nuclear power.

All that was needed was a tipping point, and in this case it was the Energy Policy Act of 2005, which caused a serious and real movement toward building new nuclear power plants in our country. Whether it was the production tax credits, the government loan guarantees,

regulatory risk insurance, or all three, a multiplicity of utilities have jumped into the fray jockeying to be among the first to order new nuclear plants for the first time in nearly three decades.

As many of you may know, our agency, the U.S. Nuclear Regulatory Commission (NRC), is anticipating that between now and the end of 2008, we may receive 17 Combined Operating License applications for almost 30 new units. Over the last year it seemed that each month brought with it a new utility announcing that it would climb aboard the new plant bandwagon. More recently, during visits I have made to Wall Street it has become apparent that investors and analysts, although somewhat slow off the mark in embracing this change, seem to be increasingly convinced that events have aligned to a point where building a new plant is economically plausible. Such a theory would have been heresy in New York just a handful of years ago.

As a Commissioner, I have the occasion to make frequent visits to the House and Senate, and I can easily say that the Congressional enthusiasm for nuclear power is the highest it has been since the late 1960s. While there remain a small number of steadfast opponents to nuclear power in Congress, even those who oppose it won't openly admit it. This is a far cry from the anti-nuclear platform endorsed by a large number of Members of Congress during the 1970s and 1980s.

Even the views of the environmental community have changed. Now I would not be so bold as to say that the environmental community is embracing nuclear power. However, the opposition to nuclear power within the environmental community is more tempered and less shrill than it was when I first came to Washington in 1986. Rather than utilize a sky-is-falling mentality, the environmental community is focusing on the cost of nuclear power plants and the ongoing debate on Yucca Mountain as the principle avenues of debate.

Currently, former NRC Commissioner Peter Bradford, on behalf of some anti-nuclear groups, has been trying to remind the Wall Street community and the press about the horrors of Shoreham and the plants that were built back in the 1980s. I don't know Peter Bradford, and despite all my travels over the last nine years, he and I have not crossed paths during that time. Nonetheless, I suspect that his views remain focused on his involvement in this arena during the Jimmy Carter era, and are not fully informed by the reality of what has happened at our agency and in this industry over the last 10 years.

Irrespective of what is happening to the opponents, what does all of this mean for the views of the public? Well, when you look at the polling data over the last 20 years you can see a dramatic switch in the overall views toward nuclear energy with today 60 percent to 65 percent of the American people voicing their support for building new plants in our country. While I suspect that one quarter of the American people will always oppose nuclear power no matter what, this industry has clearly been winning the battle for the silent majority.

When taken together, I think that we have seen a major shift relative to Newton's First law. Rather than staying at rest, in my view, this industry is in motion and will stay in motion. Absent some unforeseen event, I believe that we have approached the tipping point of inevitability that new nuclear power plants will be built in the United States. Today the topic, I believe, is not whether we will build new plants, but how many.

Now, that having been said, what does that mean for those of you whose companies have or will soon jump aboard the new build bandwagon. Adam Smith laid it out quite well in *Wealth of Nations* when he stated that, "the real price of everything is the toil and trouble of acquiring

it.” For those of you who wish to travel down this path, your companies must be ready for what awaits you, and to the extent that you prepare well, you are more likely to be rewarded for your effort.

In that vein, I would like to raise a series of questions about what I believe is necessary to be successful in an effort to build a new nuclear power plant. To begin with, do you have the right team? Have you selected a group of staff who understand the NRC and appreciate the expectations of their NRC counterparts? Have you created a separate organization within your company to assure that you aren't weakening your ongoing operations or taking away from your operational focus? Have you asked your potential architect engineers and vendors about how they intend to meet NRC deadlines, and do they have an understanding of how to work toward NRC expectations? Have you given yourselves sufficient time and resources to prepare a combined license application that is robust and complete? Have you been communicating regularly with the NRC staff to understand their views and how NRC realignments may affect your effort? Have you done everything you can to minimize surprises in the application process?

Clearly, strong community involvement will be a key measure in a smooth effort to build a new unit. Have you done enough to engage with the local community in a meaningful way so that they have some ownership of the project? Do they really remember or appreciate what impacts construction of this magnitude can have on areas surrounding the plant? Have you fully considered the environmental impacts of the site, as this typically was a major impediment to construction the first time around? To what extent have you engaged with your regional EPA office to make sure they are aware of the impacts of your plans?

Emergency planning was a major point of contention at a number of plants previously built. Have you engaged with your local FEMA administrator, and are they aware of your plans? If you are building at a greenfield site, have you begun the dialog with the parties who will be new participants in the emergency planning process? Have you begun to think about where you will put all those new sirens?

Having the workforce needed to build these plants will be a key driver in making sure they are constructed on time and within budget. Are there sufficient qualified welders, pipe fitters and electricians in your region, and if not, from where will they come? To what extent is your company engaged with local technical schools and high school vocational programs? Have your unions and your workforce been involved in planning for this new wave of workers? If you have to hire people from outside your communities, what will be the response if they come from outside the U.S.?

Transmission has been a major issue at a number of sites, with delay times sometimes in excess of the NRC permitting process. Have you engaged with your counterparts in the wires business or at the Federal Energy Regulatory Commission? Are your regional and local system operators fully engaged with your plans? Is your offsite power supply sufficient to meet the needs of additional units that may be added at your site?

For those of you further down the line, do you have a good handle on where you stand in the queue to obtain the forgings needed to manufacture your vessel, your low pressure turbine, and for some of you, your steam generators? Has your staff checked the backlogs for tubes and motors, and how will those affect your construction schedules? While modular production methods have worked successfully in Japan, have you met with your potential vendors and are you confident in their construction methods? Have you begun planning for your future fuel load, and what country will be its source?

Now, I could go on and on, but I think you get my point. There is an old joke about a man in New York City who approached an elderly woman on the street and when he asked her how to get to Carnegie Hall, her answer was “practice, practice, practice.” Well the corollary is that if you want to build a new nuclear power plant, you must prepare, prepare, prepare.

This is the final public speech I will be giving as a member of the Nuclear Regulatory Commission. It has been a wonderful nine years, and I have been proud to have been a Commissioner at our agency. I won't list for you the many areas of accomplishment we have engendered over these years, but I think that anyone who has been in this industry awhile will tell you we are a far, far different agency than we used to be.

As I leave, I would reflect on what has made us, this industry, successful in our interactions over the time I have served. Frankly, the key word is communications. I have a phrase that I have used with my staff over the years that I think is instructive of this effort: “I can only fix what I know about.” For the Commissioners to be successful, they must work hard to learn about this industry, its participants, its stakeholders, the NRC staff, and the myriad of details that this arena touches upon. My success as a Commissioner directly resulted not only from a constant effort to learn, but also from the openness and engagement that I and my staff have had with the internal and external stakeholders, with whom I have made contact.

While I will be leaving, I would urge that you and the companies you represent remain engaged with the Commission and its senior staff. The more the Commission knows about what is going on out in the field and the impact of the decisions that they make, the better informed their decisions can be. You all make a significant part in maintaining that continued success.

It has been a delight to get to know this industry and its stakeholders. While I may be leaving my current position, I hope that whatever I do, I can remain engaged in this vitally important source of our nation's safety, security, and economic livelihood. Thank you very much.