

Bring on Nuclear

A CONVERSATION WITH DAVID CRANE
BY MARTIN ROSENBERG



JNRG Energy aspires to become the first company to end the long drought on nuclear power plant construction in the United States. NRG, based in Princeton, N.J., generates 24,000 megawatts at 50 facilities. It has been in the news lately as the target of a hostile takeover bid exchange offer by Exelon. At a recent public lecture, David Crane, the company's president and chief executive officer, observed, "The energy industry stands poised to take a significant step forward in addressing our nation's energy needs in a manner that does not mean a step backward in terms of our stewardship of the global environment." *EnergyBiz* recently conducted several interviews, in person and via telephone, with Crane. The comments of the graduate of Princeton University and Harvard Law School that follow were edited for style and length.

David Crane, as
photographed by
Eric Melzer

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ENERGYBIZ Will NRG be the first company to complete a next-generation nuclear power plant?

CRANE It's by no means a slam-dunk. But we have a clearer path to success than anyone else. Our technology is the only one that's been built on time and on budget. The Japanese have developed an approach to building these new plants which is highly modularized and have actually put this type of nuclear plant on line in as little as 39 months.

ENERGYBIZ Who is going to build yours?

CRANE Toshiba.

ENERGYBIZ And the cost?

CRANE Two units for up to \$12 billion. Each is 1,350 megawatts, so they will generate a total of 2,700 megawatts.

ENERGYBIZ When will they be ready to run?

CRANE Well, our objective is that they come on line with a one-year stagger – 2015 to 2016 for the first one and a year after that for the second.

ENERGYBIZ Are you optimistic that the United States faces a nuclear renaissance?

CRANE We're on a pretty good track. We have a new secretary of energy, Dr. Steven Chu, who is supportive of nuclear energy. The Democratic Party could have picked someone who was on the record as being anti-nuclear. I have a very high degree of confidence that the government and the industry, even in the current environment, will push two or three plants across the line. The much more unsettled question is have we created a foundation for a full-fledged nuclear renaissance?

ENERGYBIZ Will nuclear plants continue to generate one-fifth of our electricity supply?

CRANE Maintaining 20 percent is the very minimum. Halfway through the next decade, we need to be bringing two or three reactors on line every year just to maintain the 20 percent based on the expected retirement rate.

ENERGYBIZ Is it realistic or desirable to try to get that up to 40 or 50 percent of our power generated by nuclear units?

CRANE I would envision it as a pyramid structure. Two or three plants have special incentives and will go forward. That's sort of the peak of the pyramid. Below that you have a legitimate first wave that could be 15 to 25 new reactors by 2025 to 2030. To get the full 40 or 50 percent market share you're talking 2050. To get to another 100 to 200 nuclear reactors, the government's going to have to get

deeply involved, particularly in the siting question.

ENERGYBIZ You have publicly said that converting our vehicles to electric power would be economical to consumers. I believe you said that electric cars powered by your South Texas nuclear units would run on the equivalent of 97 cents a gallon. Is that a story the industry needs to start telling in a louder voice?

CRANE Well, the short answer is yes. When the nuclear revival started two or three years ago, I went in front of the Nuclear Energy Institute and said, "Look, you need to hitch your wagon much closer to the climate-change issue." Now I would say to them to take it to the next level, to tie it to the electric car and show the benefits. You could be talking about a very cheap powered car.

ENERGYBIZ What will be the role of independent power producers as our energy economy evolves?

CRANE The country is split, half on the utility model and half on the disaggregated, deregulated model. I don't think that that's going to change. In our half of the country, with the competitive model, the independent power generator needs to go back to the role it first had – innovation. It has to add new kinds of infrastructure and do it quicker, cheaper and basically better than the traditional utilities can do it. I'm not faulting traditional utilities, but the basic structure of the traditional utility is not set up to innovate. Everything needs to be approved by a state public utility commission. Independent power companies, not just in terms of mindset, but also structurally, are capable of moving and adapting new technologies quicker than the traditional utilities.

ENERGYBIZ Should there be consolidation in the ranks of investor-owned utilities?

CRANE Absolutely, there has to be consolidation. In most industries, the biggest players who normally would be the consolidators are traditionally not the most innovative. We have an industry that's always been very conservative. Some have observed that that the electricity industry is the single least innovative sector. Our sector does no research and development on its own. We depend on companies like GE and Siemens to do our research.

ENERGYBIZ Should we promote deregulation and break up integrated utilities?

CRANE The political winds do not favor deregulation in any industry because of recent experience in other sectors. However, the utilities over the last 10 years in all phases of the power industry have learned from the independent power producers and have adapted new technologies. They've adapted new approaches. They've gotten their cost structures down quicker, sort of mimicking what they've seen from the non-regulated sector. The drive for better reliability in nuclear

plants was led by the nuclear plants that were actually sold out of rate based. The ones that were still in rate based followed with the same operating procedures pretty quickly.

ENERGYBIZ What has been NRG's philosophy of hedging?

CRANE It's been jarring, the move from the extremely high-price environment in the first half of the year to the plummeting commodity-price environment the second half of the year. Our approach is to be fairly well hedged out two to five years in the future. There's an up cycle, and there's a down cycle, and one follows the other surely as the moon follows the sun.

ENERGYBIZ Describe NRG's 24,000 megawatts of generation. What share of that is coal and nuclear?

CRANE Well in terms of megawatts, net megawatt nameplate capacity of the 24,000 megawatts, about 4 percent is nuclear and 30 percent is coal. Those are the baseload units that run all the time, so in terms of energy sales, they are a much, much higher percentage of the overall energy sales.

ENERGYBIZ Where would you like to see the mix headed a decade or two out?

CRANE Well, in the baseload fleet, we're definitely striving for a lower carbon footprint, and that would mean sort of diminishing the importance of non-retrofitted-coal power generation through adding nuclear on the baseload side and adding more gas-fired generation.

ENERGYBIZ Are you going to be involved in trying to develop clean-coal generation?

CRANE We'd like to be very much involved, particularly in post-combustion carbon capture. We've done a lot of work in that area, and we see it as enormously important and as a potentially strong opportunity as well. So we'd like to be involved in that. But before they have a carbon regime in place, to be in clean coal really depends on getting substantial government financial support, because the cost to take carbon out of coal is expensive and the technology's uncertain.

ENERGYBIZ In the short term, you believe we need to develop regional energy plans.

CRANE When you do scale deployment of solar in the West, wind in the Midwest and nuclear in the South, one of those technologies may emerge as the dominant technology. As we build out a national grid, we can pick that technology and take it.

ENERGYBIZ Where will NRG focus?

CRANE We would like to be in all core generation technologies. Right now, we're most closely identified with nuclear because of the South Texas Project. But we've got two wind farms that we've built in Texas.

ENERGYBIZ Would you be interested in building wind generation in the upper Midwest to serve Chicago?

CRANE Yes. But it's sort of a chicken-and-egg situation. How do you get the power from the Dakotas to Chicago?

ENERGYBIZ Do you see a role for NRG to either research or develop new forms of generation from wind, solar, geothermal, ocean waves and tidal energy sources?

CRANE The Silicon Valley venture capitalists have learned that maybe unlike the dot com sector, in our world, to show yourself as a success, you need more than a business plan. You need a demonstration at scale. That is really the point of the value chain where we can play. We would like to get involved in new energy technologies that are being proven at the demonstration-project stage. Among the various types of renewables, we would like to look at

all the things you're talking about, plus more.

ENERGYBIZ Is it possible that the electric power sector is going to change dramatically?

CRANE The idea that there could be a disruptive technology that could emerge as a world-beater category-buster 20 or 30 years down the road – I would not eliminate that possibility. What makes it tough in our industry is that it is so capital intensive. You could have the greatest killer technology in the world but until you've deployed it at scale, it's not really doing you any good. ☒

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