

of hundred died by virtue of the evacuation and some of the related aftereffects of that. The Chernobyl case is different for a lot of reasons—the design of the reactor, the way the Soviet system at the time responded, and so forth. That was a bad one. A few thousand people—I think 4,000, depending on how one counts—may have died in that one. But as a consequence of Fukushima, 54 nuclear power plants were shut down in Japan and eight in Germany, with the rest to follow by 2022, and thousands of people are dying from the aggravated emissions from the coal-fired plants that have displaced that power.

We have to try and put these things into context and understand that there is no energy form that is without risk. We need to understand which ones are safer relative to the others. We need to realize how important the overall challenge of decarbonizing our environment is and why we need to do everything we can to maximize that effort.

You've been interested in or involved with the nuclear industry since the 1970s. How do you see the difference today among young people compared to what it was like in the '70s?

I guess I would say that I've seen ebbs and flows in this. In the '70s there was a lot of enthusiasm about nuclear. What has

happened is this unfortunate phenomenon that every time people start to wrap their minds around nuclear as something they really want to push and support, something bad happens—Three Mile Island, Chernobyl, Fukushima. But I would say that nowadays, I see a lot of enthusiasm from people who are interested in nuclear for all the right reasons. That is to say, making sure the people of the world have access to electricity and making sure that electricity is carbon-free and therefore environmentally friendly.

In going to Georgia Tech and other places in recent years and talking to students, I've seen a level of enthusiasm that I think is going to be necessary for them to actually follow up on some of these designs to build these advanced reactors. But they have to believe, as I believe, that nuclear is important to our children and their children.

Every year when the Nuclear Energy Institute holds its Nuclear Energy Assembly, the first day is dedicated to this upcoming generation. It's really inspirational to see how enthusiastically the younger generation is embracing the challenges and the opportunities present in nuclear energy.

Speaking of the accidents and the safety concerns, I heard you say that even mentioning something like "accident tolerant

fuel" puts in the forefront that accidents can happen. It seems that safety is always front-of-mind, much more so than in the airline industry, for example. Is the nuclear industry too defensive, and if so, how can this be addressed?

I think that overall, nuclear has had an exemplary safety record. I don't want to get into invidious comparisons, but there have been gas pipeline explosions in which all manners of people have suffered, and it's awful whenever that happens. But if you just rack and stack energy forms, nuclear has been extraordinarily safe. I do not believe that the industry should back off at all from the "safety first" deeply embedded consciousness that is the hallmark of this industry. I'm not suggesting that in the least. To the contrary. I think that needs to be continually emphasized and reinforced.

However, using phrases like "accident-tolerant fuel"—you never talk about an "accident-tolerant car" or an "accident-tolerant airplane." Certainly, when it comes to driving cars, every time you get on the road, there is a risk. There is a risk in everything. But I do think that the industry could do better in thinking of how to communicate our safety record and the commitment to safety without saying so in a way that actually raises the very concerns we are trying to address. **■**



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