

The Texas power grid disaster

Robert Bea, co-founder of Center for Catastrophic Risk Management: "International collaboration is critical in disaster prevention"

Barry Grey
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Robert Bea is a retired civil engineer and professor emeritus in the Department of Civil & Environmental Engineering at the University of California at Berkeley. He is a co-founder of the Center for Catastrophic Risk Management at Berkeley.

He has had a long and distinguished career in the fields of flood control and risk assessment and management, beginning in 1954 when he joined in the Army Corps of Engineers.

Bea was appointed chief offshore civil engineer at Shell Oil in 1965 and stationed in New Orleans. Four years later, he was moved by Shell to Houston. After helping to develop the international consulting engineering contractor that became PMB-Bechtel, he joined the faculty at UC Berkeley. There he worked on the analysis of major failures and disasters involving engineered systems, such as the BP Piper Alpha North Sea oil rig disaster in 1988, the Exxon Valdez oil spill in 1989, the Petrobras 36 oil rig disaster (2001), the NASA Columbia Shuttle explosion (2003), Hurricane Katrina in New Orleans (2005), the BP Deepwater Horizon oil spill (2010), the PG&E San Bruno pipeline explosion, and the 2017 failures at the Oroville and Anderson dams in California.

In all, he has been involved in investigations of more than 630 major accidents and failures associated with complex engineered systems around the world. He is the author of three books and many articles.

The World Socialist Web Site interviewed Professor Bea in September 2017 during the mass flooding of Houston as a result of Hurricane Harvey.

Professor Bea spoke with the WSWS last week from his home in California.

Robert Bea: What has happened recently in Texas as the result of an intense cold spell has very many similarities to the Houston flooding from Hurricane Harvey in 2017 and the inundation of New Orleans in Hurricane Katrina in 2005. Complex systems that are subjected to intense demand suffer from neglect—a very important word—and the story unfortunately goes on.

Barry Grey: The *World Socialist Web Site* wrote on February 22:

The latest disaster in Texas is the product of corporate greed and a decades-long conspiracy between state politicians and the energy conglomerates designed to squeeze the state's population for as much profit as possible.

Could you respond to that statement?

RB: Those are pretty severe words, and they sting. Words like greed come into it, and you'd say, "No, this is one of the most advanced places in the world. And certainly we're better than that." And the answer I would give personally after having worked on these challenges for a very long time is that I'm afraid it is true.

I would quickly add an admission. I am one of those damned Texans, born in Mineral Wells, Texas, in 1937. I have been working on these kinds of things since my early years learning to be an engineer. One of the benefits I have had by this time in my life is that I've worked in 26 different countries. It was as a result of those experiences that I came to understand that the United States is indeed unusual. So many good things, but there are a few things—when you look at it from the outside, those severe words like greed and corruption, they start to make sense.

In our recent history, one of the preventable disasters I worked on in Houston was the saga of BP, the Deepwater Horizon disaster. That was a big one. We sure caused a lot of trouble. After that happened, we made in the United States some very big improvements in what the industry could do and would do. Believe it or not, we put these things into improved regulations.

Then we got a new administration, and it said, wait a minute, we are spending a lot of money needlessly. What we need to do is walk back the regulations. And do you know what we did? We walked them back to before the disaster.

I am afraid the current history concerning the Texas power grid has many similarities to the BP disaster.

BG: What do you think accounts for the rolling back of regulations, the lack of preparation and the failure to do basic things like insulate natural gas production and pipes?

RB: After I shifted my career from the drill rig to academia, I went to the University of California at Berkeley, applied as a graduate student and a year later I was on the faculty. That started a 20-year struggle to understand what you were driving at with those words you used earlier.

The trail of tears I have witnessed, in light of this recent saga of failure of the power grid in Texas, it has got the same damn struggle behind it that I had learned about. I have been talking recently with colleagues who live in very cold countries, and saying, "Do you guys have trouble with your power grids in cold weather?"

A couple of them are from Norway. They smile at me and say, "What do you think we are, idiots? Of course, we have learned. We have been

having increasing incidences of these deep cold weather periods, but we have learned to make investments to prevent these things.”

So their power grids do not fail. We suffer millions in catastrophic losses that ultimately have to be borne by the public, so I am on the side of prevention, not reactive management—watch it failing, watch it collapse. Explain it away, fix it fast and return to business as usual.

BG: The general trend of deregulation in the United States has been going on for decades. It really started in the 1970s. So there must be something driving it besides the stupidity of this or that individual. The Hurricane Harvey disaster was under Trump, the BP oil spill was under Obama, Katrina was under Bush. Of course, Trump carried out a massive deregulation policy. But this is a longer and broader trend.

RB: You are exactly right. One of the things I have heard from industry is that there is a drive for short-term profitability. But there is also at least implicit a drive for long-term profitability. And it was when these companies began to recognize a need to recognize both that it started to make sense. To make investments, to prevent these disasters, because the long-term profitability was at stake.

I have started to dig back into earlier power grid failures. Currently there is a lot of discussion about the 2011 crisis and three years later in 2014. I found that the story actually starts back in the 1980s. We have had repeated failures of our power grid system in the wake of unusual cold snaps in hot areas like Houston. There is a history going back decades where cold snaps were happening in warm areas, pipes were not insulated, water froze, pipes ruptured, and the power grid has been having trouble since that time.

There have been several excellent analyses of what needs to be done to prevent them, but what have we done with them? We have ignored them. We will continue to have these disasters and costs until we operate on the basis of prevention and mitigation, not the reactive approach we have here in the United States.

BG: Do you think the frequency and severity of these cold snaps are impacted by climate change?

RB: Yes. Climate change is a natural thing, but recently there has been some unnatural things we have added to it like carbon fuel effects and greenhouse temperature effects, and human influences have merged with the natural influences to exacerbate some of the recent climate changes we have seen. Climate changes have to be properly understood and addressed or we are going to continue to get our ass kicked by our ignorance.

BG: Do we have the scientific knowledge and the technical wherewithal, if used properly, to anticipate, mitigate and respond in a rational way to events like what happened in Texas this month?

RB: Yes. The knowledge is there. That is how some poorer countries with very severe environments—I am thinking about the Netherlands—came to understand that yes, the climate is changing. They got to react to it in a pro-active way. They cannot wait until the entire country is flooded before they recognize that the sea level is rising. They have got to keep that damn water out of the inside of the country, 80 percent of which is below sea level, or they are going to be out of business.

They have come to grips with this. They have put in this pro-active and mitigation element. And guess what? They are still making money and they are not having to swim to work.

BG: You have spoken repeatedly about the international experience, the experience of other countries around the world. It seems that with Texas you have an extreme example of provincialism and Texas nationalism. This question of an international approach to the development of electricity and infrastructure in general, how important is that?

Also, in relation to the pandemic, how important is an internationally coordinated, scientifically driven response?

RB: It is absolutely crucial that it be done, and from your very asking the key question I can tell you have learned a lot. Yes, we are the leading country in this world, but it is a big world, and there are sure a lot of smart

people in this world. Why cannot we collaborate and learn to work with them?

Work I did in the greater New Orleans area after Hurricanes Katrina and Rita taught some lessons. One of the first things I was able to do from my position at the University of California at Berkeley was to bring some Dutch people here to the United States, to New Orleans. Looking, boots on the ground, at what had happened in Katrina and Rita, and the people from the Netherlands were shocked.

One of them looked at me from across the table when we were having dinner in New Orleans and said, “Bob, when we came here, we thought the United States was a First World country. It is not.”

International collaboration is critical in disaster prevention and mitigation. We can learn a lot if we turn to other countries and learn from them, without arrogance and those sorts of things.

BG: Do you see a parallel between what has been revealed in the disaster in Texas this month and the disastrous response, particularly in the US, to the pandemic?

RB: Yes. Our answer to the pandemic has been like our reaction to the cold weather affecting the power grid in Texas.

BG: What do you think has characterized that reaction?

RP: The response has been reactive, not pro-active, not preventing and mitigating. We watched the temperature indicators in the pandemic rise and fall. Politically, and this one really scares me, I have watched different places in the United States react to the temperature gauges for the pandemic—the number of dead, the number of people in the hospital—and it has been like watching stock market indicators.

And they say, “OK, the death rate is going down, that means we can open up our businesses and turn back to our normal lives as quickly as possible.” And so they do it, the death rate goes back up and so we have another bump in the pandemic.

BG: Biden is now demanding that the schools be reopened. So the question is, who benefits from this? In the course of the pandemic, the wealth of Elon Musk, the head of Tesla, has quintupled. There are figures showing that the wealth of US billionaires has gone up by more than \$1 trillion. The stock market has gone to record highs, even as the death toll has increased. What is one to make of that?

RB: It is an example of what caused the pain in Texas in February. It is an example of what happened with Hurricane Harvey. The pandemic has given us examples of how this reactive approach can favor one economic component that enjoys short-term profitability and not benefit a whole lot of people.

I remember that the early projections for maximum deaths in the United States as a result of the pandemic were 200,000 to 300,000 people. Well, we have passed a half million and we are pushing, and we will probably go to 600,000 or 700,000 before this is over.

There are these components in our society that actually make money off of these activities. That early word you used when we started this discussion, about greed, well, yes, but it is part of the problem of how we deal with these things in the United States.



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