CENTER FOR
STRATEGIC AND INTERNATIONAL STUDIES (CSIS)

PREPARING FOR THE UNTHINKABLE: JOINT CRISIS LEADERSHIP IN THE EVENT OF ENERGY SYSTEMS BREAKDOWN

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STACEY WHITE: Good evening, and welcome to CSIS. Thanks very much for trudging along on this rather humid day. It's quite sweaty out. But I appreciate you for coming. This is one of – we are now at seven events in the context of a partnership we have with the Louisiana State University and Pennington Family Foundation looking at different emerging themes within disaster response, disaster prevention and disaster management, both domestically and overseas.

And we are thrilled to have this particular event tonight which really brings together energy security and natural disaster management and looking at this in the context of the most recent Fukushima disaster but also what we experienced at home with Deepwater Horizon. So with that, I'm going to hand it over to the experts. Dave Pumphrey is our executive director of our national energy security program here at CSIS and he'll be moderating tonight. So thanks very much.

DAVID PUMPHREY: Is this one on? Okay, thanks, Stacy. It is an honor to be here and to moderate this panel. It's a little outside the lane of what we normally work on in the energy and national security program. But it's clear it's becoming a major factor in terms of how do we make certain that the facilities we have, have the resilience to be able to withstand the natural disasters and other events and how do we recover from them when they do happen.

Our first speaker is Kenji Goto, who's the minister for economic trade, energy and industry at the Embassy of Japan. And he is going to speak here from the podium. He has got to leave fairly soon after his talk. But he is going to give us a perspective of what has been happening in response to the disaster in Japan with the earthquake and the tsunami and then the resultant damage to the nuclear power facilities.

Mr. Goto has had a long history with the ministry of economic trade and industry in Japan, has served in many places. It's really an honor to be able to introduce him. He's been a personal friend for probably too long I think, too many years. It makes us all feel a little bit old. But I have a great deal of respect for him and it's a great honor to have him here with us. So Kenji, if you want to start?

KENJI GOTO: So thank you very much, Stacey and Dave, and good afternoon everyone. And again, my name is Kenji Goto. I'm responsible for the energy and trade affairs in the Japanese embassy here in Washington, D.C. And back in Tokyo, I was working for the ministry of economy, trade and industry – METI.

First of all, I would like to express my sincere condolences to those who were severely affected by the tornado last Sunday as well as the series of tornadoes during these couple of weeks. And second, I would like to mention that Japan has been receiving an enormous amount of support from countries all over the world and the United States is the top of the list. Thank

you very much. And now, I would like to briefly explain the current situation and the future direction of the Fukushima Daiichi nuclear power plants.

Our primary goal has been and still is to bring the situation of the nuclear power plant under stable control. To reach this goal, we are facing many challenges, as you can see on the slide which you can see over there. There are several challenges and to tackle these challenges, the Tokyo Electric Power Company – TEPCO – released in April and revised quite recently in May a roadmap to recover from the accident.

And the government will monitor and verify how things are in progress in line with that roadmap prepared by the TEPCO. That is the kind of relationship between the government and the industry. We are aiming to bring the reactors to the cool down and have it under control in about six to nine months.

At the same time, we will thoroughly examine this accident and share that knowledge and experience gained from that accident with the international community with maximum transparency. There have been a couple of developments this week.

Number one, on Tuesday this week, which was on May 24th, our cabinet decided to form a new committee to start examining and verifying the accident at the Fukushima Daiichi plant and second, also on the same day on the 24th, the government of Japan and TEPCO accepted a team of experts from the IAEA – International Atomic Energy Agency.

And this international team began its investigation into the Fukushima Daiichi nuclear power plants. And third, today about several hours ago in France our Prime Minister Kan announced to the G-8 leaders that the new committee welcomes comments from overseas experts and that the new committee will share its findings with maximum transparency.

In reference to the committee's findings, the prime minister also said that he intends to hold an international meeting on nuclear safety in Japan with the IAEA later next year. So we strongly hope to contribute to the global debate on enhancing the safety of nuclear power generation.

These are the latest developments which I would like to express to you. And in going through this period of crisis, I would like to take this opportunity to give my short personal thought on the situation; that is, the importance of the information sharing and the communication.

For example, four days after the accident, we established a joint government TEPCO headquarters. This was located at TEPCO building and is being led by the Prime Minister Kan. And the deputies of that joint headquarters were the minister of economy, trade and industry and the CEO of TEPCO. They met every day and held video conferences with the site in Fukushima.

The people involved in experienced how important, how relevant this kind of all-inclusive gathering was. Last but not least, I would like to emphasize that Japan will continue to

be a global player and pursue an open economy in the world. I can point out that many affected companies and factories are now recovering at surprising speed.

And the domestic as well as the international supply chains are being reconnected. Japanese strength in manufacturing is coming back. So our message is that Japan is open for business and travel. Thank you very much for your attention.

MR. PUMPHREY: Thank you. (Applause.) Mr. Goto has a few minutes for a few questions. So if you have a question, please raise your hand and then CSIS has a couple of ground rules we like to follow, one of which is if you identify yourself and your affiliation and then also make certain that what you're expressing is a question. If it ends – is actually a statement, if you can find a way to change and make a question at the end, it would be good. So are there questions here for Mr. Goto? Please, here?

Q: Yes, thank you. I'm Julian Jones from the Boostrap Press in Maryland. It would appear that – oh I'm sorry. I'm sorry. I'm Julian Jones from Boostrap Press.

MR. PUMPHREY: There appears to be one more rule I forgot to tell everyone. So please step to the microphone. (Laughter.)

Q: Partly because of the, let's say, events of march of this year, you know, the earthquake and tsunami and the damage to Fukushima plant, Switzerland I just read today has decided to phase out all nuclear energy by I guess about 2030 it said and hoped to have a lot of their energy – perhaps more than half of their energy come from renewable sources by the middle of the century.

Do you think the Swiss are going the right path and that they can accomplish this goal or do you feel perhaps that the Swiss move in this direction is ill-advised and perhaps partly political in nature? Thank you.

MR. GOTO: Thank you. I don't – I'm not in a position to decide how the decision by the Swiss is, right or not. But what I would like to mention that today, again, our prime minister explained – yesterday explained that our goal, direction of the energy policy. We're talking about the nuclear power that we will discuss further but the direction would be to put more emphasis on the safety of using nuclear power. And we will focus more on using renewable energy as well as energy efficiency in addition to the existing use of nuclear power as well as fossil fuel power generation.

MR. PUMPHREY: Okay. Do we have another question?

Q: My name's Mark Lively with Utility Economic Engineers out in Gaithersburg. Are you s till having power shortages? Have you been able to resolve those issues in regards to the loss of generation that you experienced? Have you been able to, say, use the backup generation that would exist in buildings like this, to use them instead of the central station power plants that have been lost?

MR. GOTO: After the earthquake and tsunami on March 11th, there was a big shortage of electricity generation. And there was some period of the rolling blackouts in the area of the Tokyo Electric Power Company.

But at this moment, level of the electric power generation is going up and up and still the people and the houses, offices and factories are trying to conserve their energy as much as possible. But we are hoping that by the efficient use of energy and energy conservation we don't see the bad supply and demand gap toward the summer in the Tokyo area.

Q: So you're still having rotating blackouts?

MR. GOTO: No, no. I didn't say that. There was some rotating blackouts but right now there is no blackouts at this moment, just energy savings activities.

MR. PUMPHREY: Well, one more question, then. Go ahead, yes.

Q: I'm Steve Kramer from Spiffy (sp). It looks like that one of the issues associated with the tsunami was underestimating of the maximum tsunami height that hit the nuclear plants. And what are you doing now to mitigate effects on other coastal plants?

MR. GOTO: Could you say that again? Sorry, the last part.

Q: Okay, so it looks like the tsunami had underestimated at that particular plant. Is there anything being done to try and mitigate the effects of higher than estimated tsunami heights at other coastal plants in Japan?

MR. GOTO: So at this time, our government and deputy minister ordered the power companies to check the safety of the individual nuclear power plants. This is the current situation.

MR. PUMPHREY: Well, please join me for thanking Mr. Goto for taking the time to come and be with us.

MR. GOTO: Thank you very much. (Applause.)

MR. PUMPHREY: Okay. We have a great panel that Stacey – I should give her the credit. Stacey has put together a great panel to talk about this issue of are we really prepared for events that are as unthinkable as what has happened in Japan, how well are we prepared, are we going to be able when an event happens to respond and will that response go smoothly.

And we have perspectives here from the industry association perspective which really brings the voice of many companies, from the federal government and looking at preparedness and then from an individual companies and the plans that they're going on. So we'll go through each of the three speakers for their initial comments and then start the debate.

Our first speaker will be Craig Conklin, who is the director of the Sector Specific Agency for the Executive Management Office for Homeland Security. He has extensive experience working with DHS looking at critical infrastructure and the needs we have for protecting that and are we prepared. Bill Renz – am I getting these in the right order, Stacey? I think so.

(Cross talk.)

Then we'll have Bill go first.

MS. WHITE: Doug's going to go first.

MR. PUMPHREY: Doug's going to go first, okay.

MS. WHITE: Sorry.

MR. PUMPHREY: Ah, I'm not following my notes well. Our first speaker will be Doug Walters, vice president for regulatory affairs at the Nuclear Energy Institute, got more than 20 years' experience at NEI working in many different elements there. A lot of it is around the question of safety, security and emergency response.

Craig Conklin will then follow second and then our third speaker will be Bill Renz, who is the director of nuclear emergency preparedness at Entergy, a major power company. And he has also been working at the utility level to look at the preparedness issue and has been participating in many of the activities. So now that I've got the order right, Doug, would you-

DOUG WALTERS: Great. Well, thank you very much. I appreciate the opportunity to be here. It's an important subject and I'm going to give you a very high level perspective from the nuclear sector. Certainly the recent tragedy in Japan and what we learned from Deepwater Horizon I think underscores the need for and certainly the important role that an integrated response plays in catastrophic events.

Collectively, our sector – other sectors will certainly learn from the lessons that come out more recently from Fukushima and will apply those as appropriate to our own capabilities. But for the nuclear sector and nuclear power plants, I think we have a pretty robust foundation from which we'll start and we'll look to apply those lessons. And let me talk just briefly about that foundation.

First of all, we're a regulated industry. So the Nuclear Regulatory Commission has regulations that require us to have emergency response plans that are integrated. They also require us to have formalized emergency planning zones – one at Ten Mile for the plume exposure and one at 50 miles for ingestion exposure.

Second, our emergency response plans – the integrated plans are pretty mature. We have well over 30 years of experience and opportunities for learning lessons on our own that we can apply to those plans. Also the NRC does the same thing and right now as a matter of fact the NRC and FEMA are revising their regulations for the first time in some years to, you know,

upgrade, if you will, and incorporate a lot of those lessons that we've learned over the last 30 years.

Third, we exercise those plans with the offsite agencies and that to me means it's the local and state emergency response organizations. It's local law enforcement. It's first responders. It's emergency medical service organizations.

We have requirements to do those integrated exercises biannually and when we do those, the NRC will evaluate the nuclear plants piece which is the response and then FEMA looks at how the offsite agencies performed.

On the off-years, the sites will do their own drilling and exercising. They may invite the NRC to observe. They may include a very specific agency that maybe they want to engage with for a particular reason. But the point is that we do exercises on a regular basis of our emergency response.

I think lastly because of this maturity we've developed very solid relationships with not only our regulator but those offsite agencies and our offsite stakeholders and it gives us a very productive interface. Our primary goal obviously is protection of public health and safety. And all those parties that I just mentioned play a critical role in ensuring that we can execute these plans the way that they're designed.

Let me also mention that we're not in a silo. While we do a lot of drilling and exercising of our emergency response plans, we're also involved through our nuclear sector coordinating council – activities with DHS and some other agencies.

With DHS, for example, we completed what are called comprehensive reviews at each of the 104 operating nuclear power plants where we looked at a range of threats and threat vectors and we evaluated what the response would look like not only from our onsite security organization but from the offsites as well and we worked very hard with DHS and other organizations to deal with any kind of enhancements that may have been identified.

More recently, you may be aware that the NIAC – the National Infrastructure Advisory Council – issued a report on resiliency. It contains nine recommendations. Some of those are nuclear specific. We're working on a plan to address those.

So it's an important topic. Again, we think in the nuclear business we've got a pretty good foundation from which we'll start but certainly we look forward to seeing the lessons learned coming out of Fukushima that will enhance what we already do. Thank you.

MR. PUMPHREY: Thanks, Doug. Craig?

CRAIG CONKLIN: Thank you. It's a pleasure to be here today and what I'd to do is just give you a quick overview of what we've done in the past few years and even the past few weeks with regard to emergency preparedness and resiliency. As everyone here is well aware, you know, we live in an increasingly complex technological world.

The chemical plants that support our nation's military and industrial complexes, the nuclear power plants that supply energy to us and the cybersystems that we rely on for communications mean that we're ever increasingly reliant on this critical infrastructure. And the complexity of this infrastructure really demands our utmost respect and attention if we're going to maximize its beneficial uses as well as reduce its vulnerabilities and enhance its resiliency.

As is evidenced by the Deepwater Horizon incident and the Japanese accidents with the Fukushima plants, technological disasters can really wreak great havoc on our economy, public health and safety and the environment.

And while these accidents are few and far between, the magnitude of the potential consequences really means that we have to pay attention to these facilities and this infrastructure and we must develop and implement comprehensive risk management strategies.

Doug just mentioned the NIAC – the National Infrastructure Advisory Council – in its 2009 report on resiliency stated the owners and operators of critical infrastructure shoulder a burden to manage their operational risk in an all-hazards environment across the full spectrum of prevention, protection, response, recovery and reconstitution.

The thing is though that we can't rely on the private sector to shoulder that burden alone. Federal, state, local, tribal and territorial governments need to work closely with critical infrastructure owners and operators to ensure that we have an effective public-private partnership.

Now, the building of this partnership is the goal of what we call the national infrastructure protection plan that was just revised in 2009.

And the overarching goal of that plan is to build a safer, more secure and more resilient America by preventing, deterring, neutralizing or mitigating the effects of deliberate efforts by terrorists to destroy or incapacitate that critical infrastructure as well as strengthen national preparedness, provide for timely response and a rapid recovery of infrastructure in the event of an attack, natural disaster or any other kind of emergency.

Basically this plan is our steady-state approach to enhancing security and enhancing resiliency and working closely with the private sector. But in addition to working with the stead-state effects or steady-state operations, we've made significant progress on emergency preparedness and emergency response activities.

Since FEMA was established in 1978, more than 100 federal agencies and organizations have reported that they played some role in emergency and disaster-related functions and activities. As you know, we've tried to streamline that over the years.

Now that we've got the Department of Homeland Security, which was activated in January of 2003 and we have the responsibility for facilitating, coordinating national response

efforts and national preparedness efforts along with the rest of the federal departments and agencies, our private sector and academia and nongovernmental organizations.

We've moved from a national response plan from 1992 to a national response framework which recognizes that this has to be a joint effort. No single organization or level of government or the private sector can handle this situation on their own. This framework, which is written for government officials, the private sector, emergency management practitioners, clearly recognize that effective response to an incident is a shared responsibility.

Recently, presidential policy directive eight, national preparedness was released and it states currently our national preparedness is the shared responsibility of all levels of government, the private and nonprofit sectors and individual citizens.

Even recently, Administrator Fugate at FEMA is now promoting the whole community concept of emergency management whereby we recognize that it takes all aspects of a community – volunteer, faith and community-based organizations, the private and public sectors including survivors – not just the government to effectively prepare for, protect against, respond to, recover from and mitigate the effects of any disaster.

It is critical that we work together as communities to develop collective mutually supporting capabilities to withstand these impacts. And there's three critical concepts of this whole community approach to emergency management. One is understanding ad meeting the true needs of the entire affected community, engaging all aspects of the community whether it's public, private or civic, and both defining those needs and devising ways to meet them.

And third, strengthening the assets, institutions and social processes that work well in communities on a daily basis to improve resilience and emergency management outcomes. Now, while we've made significant progress in these areas, we have a lot to still improve on. We must continue to improve our ability to share information, to communicate during an incident and to work together during an incident.

And unfortunately, I don't think we're ever going to be at a point where we can claim success. As our society becomes more complex, the nature of the disasters that we face will also become more complex. So we're going to have to remain vigilant at all times and cognizant of the need for continuous improvement. Those are my opening statements and appreciate the opportunity to be here.

MR. PUMPHREY: Thanks, Craig. Bill?

WILLIAM RENZ: Good evening. We were each given the opportunity to either provide talking points or a few slides. I went with the slides. So I'm going to step over here for a minute.

And actually, what you're going to hear from me, I think quite a bit of it is what you already heard from and I think that's telling that the private industry works so closely with the

state and local and offsite stakeholders and with the other levels of government, federal in particular, and with the industry.

I mean, if we have an issue at one plant, we go through either the institute of nuclear power operations or NEI – Nuclear Energy Institute – and apply those lessons learned throughout the industry. Again, Bill Renz, just a quick overview of what Entergy is. That's our footprint, our nuclear footprint. We actually operate 12 reactors at 10 sites and deal directly with nine states and I never took the time to add up the local communities.

And I was going to touch on just a couple of these items and that is from the standpoint of what's in place now, what do we enjoy, I point at the third bullet – emergency response organizations.

It's already been mentioned about an integrated response capability and how the licensing – we're required to identity an initiating condition is the terminology – a problem – be able to classify that event based on its severity and then within 15 minutes notify and talk to state and local response organizations. It's been mentioned that we have drills and exercises.

We actually drill with our offsite stakeholders on a quarterly basis. And in fact, if you look at Fukushima, there were two – and I think Doug mentioned it – there are two emergency planning zones in this country. One is a 10-mile planning zone where you're worried about direct exposure during a severe accident from radiation.

The other is the ingestion pathway which here goes out to 50 miles and that ingestion pathway is a fear of contamination falling on foodstuffs, those foodstuffs being consumed by livestock, for example, and then perhaps radioactive iodine getting into the milk pathway.

So you exercise periodically provisions to put those protective actions in place and in fact we had one at our River Bend plant last June and we have one at our Grand Gulf plant coming up in September. I mentioned emergency notifications.

Protective action recommendations – we're actually required from a licensee standpoint – sorry – to come up with recommendations for the offsites to consider and we have to actually work so closely with them that typically if they go with what we're recommending, what they do go with will be very compatible to what we're recommending.

And then we're required to make sure provisions are in place for state and local counties to reach out and alert and notify the public if the need ever arises and provide for emergency public information to that population. And in fact we put out – and this is very common in the industry – we put out either a public information brochure or a calendar in the hopes that there'd be better retention.

But it gives you a basic emergency planning information that goes to every resident and every business within 10 miles of each site within the country. So as Doug said, it's a very mature program. We've been doing it for 30 years.

I guess if I have an observation to make post-Fukushima, it almost seems like we had to have Three Mile Island in March of 1979 for the requirements to be put in place for the utilities to start working hand-in-glove with our offsite stakeholders.

And I think we do an excellent job and I think it's the best of any industry in the country. So it took us Three Mile Island. I'm sure there will be a lot of lessons learned coming out of Fukushima and I guess my observation is that we're almost reactionary and we probably could do a better job of looking at what other unthinkable things could potentially happen and better position ourselves moving forward.

I did – I wasn't sure if I was going to make it due to the fact that three of my plants were on the Mississippi and Mississippi crested at one last Friday, the second one on Sunday and the third one on Monday. Everything's fine. And in fact, I had a conflict on my calendar for tonight. We're meeting with local communities down outside of Waterford, outside of New Orleans and they're having a hurricane tabletop.

So it's not just, you know, nuclear emergency response. Actually St. Charles Parish in Louisiana has a very sophisticated relationship. They have a nuclear plant and they have a lot of chemical companies and they have routine meetings with industry and I went to one of these meetings as they were getting ready for the Mississippi to crest.

And the level of sophistication, the level of open communication, open dialogue between industry, between local emergency management, between in that case the state's governor's office of homeland security and emergency preparedness and the department of environmental quality. The public-private partnership that we enjoy in this industry is second to none. And it doesn't only go from a nuclear standpoint.

It's pretty much all hazards and what we have had to do in the last 30 years has brought I think a great deal of benefit to those states and those local communities that we deal with, with respect to other hazards and I just mentioned hurricane preparedness, the Mississippi and how to best manage that – tornadoes in other parts of the country and I'm sorry to bring that up.

I just cannot believe what has been going on the last six weeks or so from a tornado standpoint and the damage and the death toll. But in order to maintain brevity, I'll leave it at that and let the discussion take us where it goes. Thank you.

MR. PUMPHREY: Thanks, Bill. (Applause.) I think what we'll do now is try to open this up for a conversation amongst our panelists as well as with you, the audience. One of the things I'd like to sort of throw out there – and Bill in a way alluded to this question. The title of this session is called "Preparing for the Unthinkable" and I think we can use the earthquake, tsunami and nuclear accident as an example of in many ways the unthinkable. It's thinkable now because it's happened.

But it's not clear to me that in the planning that would have gone on around that – it's not clear that it was thought about ahead of time. So I guess a question I would put on the table is

how do you go about in this planning process pushing the envelope of saying how do we get into the unthinkable without getting into the unrealistic, if you will.

Things – you can go beyond – you can do the example of the meteor is about to hit the Earth, which I think probably we don't do much planning for. But we need to – how do we actually start thinking more broadly? Then the other example that's come from the earthquake and tsunami is that you have a situation with multiple disasters and you're having to bring into play different response units, different response – groups with different responsibilities.

And so how does that – in what way is that getting sorted out in the planning process because a good example here of the thinking on nuclear power plants and the games that can be played around a disaster there. Bill has mentioned the concept of going to a community and talking about how they would deal with a hurricane which then becomes cross-industry responses.

But just maybe developing that a little bit and do we have adequate communications abilities at the industry, local government, state government and federal government level. So with that very long question, I've given you time to formulate your answers.

MR. CONKLIN: I'm sorry, can you repeat the –

MR. PUMPHREY: Oh yeah, wait a minute.

(Laughter.)

MR. WALTERS: I'll be happy to maybe start. I won't give you a full answer. I think Bill and maybe Craig can get to the full answer. But let me use September 11th as an example. Following that tragic event, we undertook generic studies to look at what would happen if aircraft hit our plants. Probability, not so high I don't think.

Nonetheless, the prudent thing to do, take a look at it and then more importantly what do you do to mitigate some of the effects of that kind of tragic event.

What we did is we did some studies and we actually pre-staged some equipment in recognition that if you have – whether it's an aircraft impact or it's some other event that causes you to lose certain systems that you rely on for cooling the reactor – we took measures or we put measures in place to ensure that we had some mitigation capability. So every site has a portable diesel-driven pump.

It might be a fire truck. It might be a portable pump on wheels. But they have that capability. They've identified a water source that they believe would be available in the event that they had this catastrophic event and they've got the other equipment they need to get the cooling where it needs to go. That's kind of thinking of the unthinkable.

We don't expect that aircraft are going to hit our plants. But we looked at that event and put in mitigation measures. Now, the end piece of that is how we then would interact with the

state and locals. We train on some of that. We certainly – there certainly would be some sort of federal response, no question. I think when you have that kind of event, you're going to get a lot of help.

One of the first things we did when we looked at, say, an aircraft impact – the issue is you're going to be dealing with fire. So we knew we needed help from the offsites in dealing with fires. If you have a jet fuel fire, you don't put that out with water. You've got to use a special foam substance that smothers the fire. So our sites went out and where they could signed memorandum of understanding with organizations that may have that capability.

So from a preparedness standpoint, maybe to your question, we do kind of think outside the box every once in a while. We're looking at it not so much outside the box but certainly with Fukushima there are things that we're learning there regarding flooding, seismic events, tsunamis, multiple sites. We haven't really looked at multiple sites being affected. So we'll start thinking about that and taking the appropriate action.

But from a communication and what we do with the offsites and what we do with perhaps DHS, I think those are things that we're still going to work through. I think the NIAC report will help us get there a little bit. But certainly we're doing some thinking of maybe the unthinkable and we've got some things in place already that we think will be beneficial.

MR. CONKLIN: Yeah, I think people would be surprised at how much unthinkable crisis development activities we actually get engaged with at the federal government. I know back in during the Clinton administration we were looking closely at improvised nuclear devices and people still are and you think about the magnitude of those.

You know, we haven't been on this planet long enough to be recording enough data when you look at natural disasters to be sure of what is the largest thing we could expect from a – (inaudible) – magnitude event or what's the largest flood we could experience. So we really need to think – and I hate to use the term because it's used so often – think out of the box and the cost-cutting impacts and the interdependencies of the critical infrastructure.

We're still looking closely at those and learning about those and what would happen should we have a new magnitude effect. I mean, if you have a reverse of the flow in the Mississippi River, what's that going to do to the power plants along the Mississippi? What's it going to do to their intakes and things like that? So we've actually done quite a bit of looking at that.

The whole community response activity that FEMA is now championing is really based on what we call a mega-scenario of millions of people injured, millions of people dead, loss of food supplies for a long time, loss of water, loss of energy and things like that. So there's been a fair amount of that that we've actually done. It's not as visible as people may think – or not think but not visible at all in some cases.

But there's been a lot of discussion going on about what we might expect and what do we need to plan for. Unfortunately, in today's economic environment, there's a lot of competing

activity for the funding. So we can't sit back and say, okay, we're going to set aside $10 billion worth of equipment here for a 1 in a billion or a 1 in 10 billion event.

So while we are doing this thinking and looking at these scenarios, we're quickly faced with the reality of what we can actually do to prepare for those and it's a lot of competing priorities out there that really have an impact on what we do preparedness-wise.

MR. PUMPHREY: Bill?

MR. RENZ: I guess if I had something to add it would be along the lines of – and I'll marry up with what Doug said a little bit. From a 9/11 standpoint, I think the industry took it to, okay, what if you had a hostile action – an attack on a plant. And the regulatory requirements became much more robust.

The industry, I'm sorry to say, went from 9/10 where you were trying to reach out and educate the public on the industry and the technology and how well it works and what have you, to 9/12 where you were trying to figure out what information you had to keep secure. A shift in paradigm is what it was.

And so we have been thinking and the NRC and industry and FEMA and DHS has been thinking what else is prudent, as Craig was just saying. What is prudent to pursue? I will say that what we as the industry have tried to push is that when you talk about these types of things, you try to apply an all-hazards response so it's not just little groups getting benefit.

It's broader based response organizations getting benefit from whatever the activity might be. And even from an unthinkable standpoint, I think we've lost – and somebody here might be able to correct me – I think we lost on one transmission last month due to tornadoes on the eastern half of Arkansas 26 towers.

Did you ever see those big towers carrying those big wires way up in the air? We lost 26 of those and those are not something you keep in stock. So it actually had a pretty significant impact to Arkansas and to the neighboring states, to the grid in that area for some weeks, so.

MR. PUMPHREY: Well, one thing, Craig, just to follow up on the whole kind of responsibility line of thought, Doug mentioned that they're working out MOUs where if they have a fire that they need resources from outside, they'll work out an MOU. I guess one of the problems we may face is there will be competing needs for some of those resources.

So if you have a widespread disaster and Doug is saying – or Bill comes in and says, I need this for my plant down here but somebody else comes in and says, no, we need it for another critical facility. So how does that process get worked through?

I mean, do you have protocols for setting out priorities for what's more important than other things given that you've got several levels of government and industry and a bunch of other actors in this game who will be saying I'm really more important than the next guy?

MR. CONKLIN: Yeah, that is a very difficult decision-making process. In the joint field office where you would have the state representatives, the Department of Defense, DHS, private sector, those – there's a decision-making group there – a unified command, if you will – that will meet to determine and evaluate the allocation of resources.

And it is a very tough decision because if you take a – (inaudible) – scenario where you may have four or five or more states involved and various cities, there is definitely going to be a competition for resources and it's going to be up to that unified command to sit down and say, okay, these are the priorities for the overall effort.

This is where we need to expend our resources and obviously in the early going of any major event it's going to be lifesaving and rescue operations – what do we need to do to find the folks that are still surviving, what do we need to do to give aid and get aid to the folks that have been injured. But there is a process for doing that.

If they can't work it out at the JFO and at that unified command area, then decisions can be pushed up to the federal government here in D.C., where you're going to have Cabinet-level folks really responding and being organized and working with the private sector as well.

So there is a process for doing that. They've been working hard to make that as quick as it can be done and also to push it down – to keep it down to the local area because you don't want to really manage a response inside the Beltway. You want to do this on the frontlines in the vicinity or in the location the event has taken place and push it down to the lowest possible jurisdictional level you can.

MR. RENZ: I was going to say partially in jest but not completely is that probably the greatest incentive not to resolve it will be not having it pushed up to Washington for a decision.

MR. CONKLIN: Yeah.

MR. RENZ: No comment.

MR. PUMPHREY: Well, why don't we open the floor to some questions? See if we can – Stacey?

MS. WHITE: I just have a question. I'm Stacey White, CSIS – about public outreach. I mean, I remember watching really clearly the Deepwater Horizon and when Obama went down.

And then he made an address and there were very technical matters going on and there was still a lot of uncertainty about exactly what was happening and here we had, you know, the president speaking but maybe not completely mastered or hadn't – didn't have all the information in his hands.

And then when I watched Fukushima it's kind of similar, you know, the public is quite suspicious but at the same time you need to be communicating on a regular basis. I mean, what

are the protocols actually for how often you communicate and what you communicate and who communicates and what do you know about how that influences public perception?

MR. RENZ: From a practical application standpoint and from a regulatory requirement standpoint, be it DHS or Nuclear Regulatory Commission, your program is required to essentially establish a series of different specialized facilities – response facilities. At Three Mile Island, everybody went to the control room and I'm pretty sure that didn't help the operators, you know, all that much.

So coming out of that we now have a technical support center that focuses on how to fix what's broken in the plant, let the control room manipulate the plant, an operational support center where you have mechanics and you assign them things to go fix in the plant, an emergency operations facility where your primary focus is telling the offsites what's going on.

We have – well, it depends on the site but we have states and/or locals coming to our emergency response facility and seeing exactly the plant data coming out of the plant on our computer systems.

They're part of the briefings for the facility and then there's a joint information center or emergency news center – whatever it's called – but it's a joint information center that you manage, the state comes, the locals may come. You anticipate FEMA would come. FEMA doesn't necessarily exercise very often with the industry. NRC does it periodically.

But you actually will have exercises where all these different groups come up with their area of expertise, what their story is and from a licensee standpoint, we would be talking exactly what happened in the plant, what the problems are.

From a state and local standpoint, we would be talking about what is the impact if any to the public and the federals would be – you know, we're providing oversight, making sure any recommendations we think we need to be making we're making and it would move forward from there.

MR. WALTERS: Just with regard to Fukushima and I know this wasn't necessarily your question, but as an industry, we actually have an emergency response plan that's really focused on communication. I think it's one of the lessons learned and we looked at the Deepwater Horizon situation and took from that and got from that a lot of good lessons learned on communication.

So we have an emergency response plan that we work with our other sister organizations – INPO, the Institute of Nuclear Power Operations, and EPRI, who is a technical organization – Electric Power Research Institute. And so we've practiced at least once before Fukushima what we might do as an industry response to an event that doesn't happen domestically. What Bill described is obviously what we would do domestically.

But I think there's some overlaps and one that I'll share with you that was very interesting to me was the use of social media. I think that was a key lesson learned coming out

of the BP event. If you're not Twittering, if you're not using Facebook and some of these other social media outlets that I have no idea how they operate, you really are getting behind.

And we had during our response when we had our emergency response center up and running, we had three or four 25-, 30-year-olds in our office that that's all they did was social media. And you find the benefit of that very quickly. The level of activity is just astonishing to me. So I think you'll see those kinds of things integrated even into what we do domestically and I think that was a key – one of the key lessons learned coming out of – (cross talk).

MR. RENZ: And I've got to tell you, we had a lot of – a lot of media interest. You might recall the footprint. We have plants down in the South. We have plants I the Northeast, particularly in the Northeast. So our corporate communications people were running 24/7 so it seemed and we were enlisted as were many others to make sure what they were putting out was accurate.

But five, six weeks into it, it was very clear that NEI's performance, they did so well it made our jobs that much easier and it was amazing and from – including the social media aspect. We actually had an event where we called law enforcement to the plant and somebody picked it up on a scanner, the dispatcher of the vehicle and it was on Facebook before the officer got to the plant.

MR. CONKLIN: Yeah, effective communications is really key in one of these events. And there's numerous types of communication that are going to have to be held. Communicating just what the event is, how it's unfolding – then you're going to have to have communications detailing what the people need to do to protect themselves.

If it was a nuclear event it may be evacuation sheltering. If it's flooding, it may be, again, evacuation. If it's contamination of food, what do you do with the food products if you're growing your own crops. But there's going to be several levels of communication from numerous different organizations.

Within DHS we actually have this established procedures which dictate how fast the secretary has to be in front of the media depending on the nature of the event, whether it's a terrorist event, a technological event and if it is a technical and nuclear power plant, who is going to be up there and it's going to be with the chairman of the NRC, Commissioner Jaczko.

So there's procedures set in place on how DHS will handle these situations, how we're going to communicate with the state folks, how we're going to communicate with the general media and things like that. So we've got standardized procedures which really provide the guidelines on how we're going to accomplish that because getting that information out, making sure it's consistent with everybody else's information, making sure we're not putting out conflicting information is key.

It's very hard to do and I admire the public affairs folks in DHS who work with the public affairs folks in the other departments and agencies as well as the private sector, how they tackle that issue.

MS. WHITE: And just as a follow-up, is that part of the tabletop exercises? I mean, do you actually work those scenarios out and do some communications work as part of the tabletops?

MR. CONKLIN: We've actually done that with the NRC. We've actually had a situation in which at the time Chairman Jaczko was not the chairman, of the commission. But he participated in one of these exercises with the executive team and we had a meeting between him and Secretary Napolitano to hash these kinds of things out with the staff folks, if you will. So we've actually built that in to tabletop exercises. We want to run at the headquarters level.

MR. RENZ: With respect to the social media, I don't think we're there yet. As a matter of fact, NEI has a taskforce looking at it from an event clarification to staffing of your joint information center, how do you manage the media how do you handle social media.

And I think we're moving in a great direction in that regard and I think we're – all of our thoughts were proven true in light of Fukushima. But I don't know that you have any authority, any – as Doug was saying, if my kids were here they could better explain social media and how it works. But to better manage that aspect, I think we're still learning.

Q: (Off mic.)

MR. PUMPHREY: If you could step up to the – yeah – and then identify your organization.

Q: Mike McDonald, Global Health Initiatives, and we've been working on the Japan resiliency system. I'm interested in your views of how communication went with the public in Three Mile Island, how it went in Chernobyl, how it went in Fukushima and how you'd want it to go in the United States and what could we do in terms of a follow-up to NLE11 to look at an event in the United States – let's say a reactor four cooling pool-like event given that we've got rods stored similarly.

So if you took that scenario, how would we communicate with the public and what kind of thresholds might we expect both psychologically and physically in terms of the public's reaction and the reaction of our institutions?

MR. PUMPHREY: Okay, Doug, I think you've got it to tart.

MR. WALTERS: Yeah, I think – excuse me – I can't comment on TMI. It's not before my time but it's kind of before my seasonedness, if you will. But I will tell you that one thing that's interesting about TMI that I learned, I was born and raised in Lancaster, Pennsylvania which is not too far from TMI.

I had just started working at Pennsylvania Power and Light when TMI occurred and my mother called me and she said, did you see all that nuclear stuff coming out of those towers at TMI? I said, that's not – yeah, yeah she showed it on T.V. PP&L has a number of fossil

generated plants that have cooling towers and we got calls regularly. We didn't know you had a nuclear plant over there. We don't. Yeah, you have the stuff coming out.

So my point is that, you know, we learned from that. Don't show the cooling towers perhaps and, you know, because people don't know. I think in general with regard to the events at Chernobyl and Fukushima – and I can speak a little more perhaps clearly on Fukushima – it's very hard to get information, at least early on. I think that's understandable.

They're dealing with a lot. What information you did get, at least what we did, we tried to verify whatever we got using our own expertise in the industry or with our federal partners. So I think trying to get the information out when it's an event that's not domestic is probably difficult. I think that's what we're learning from Fukushima. It's quite interesting.

I do believe that we're now – you know, now we're seeing more I think openness and transparency with some of that information than we saw early on. Something happens domestically, I believe the information would be a little more free-flowing but that's just a personal view.

I think there will be so much media attention, there will be – you know, there'll be a lot of interest obviously and there will be a lot of I think coordination and collaboration between the licensee that's experiencing the event and others.

So I'd like to think that we'd be a little more forthcoming and open with information. I don't mean to indict the Japanese to say they were doing anything intentional. I think they were dealing with a lot.

But I think the channels and the process, the culture they have for doing what they do and releasing information is much different than we have in the U.S. The NRC is going to want to know. The NRC is an open and transparency agency. So I guess to summarize I think you'll see that there'll be a little more free flow of information but I don't know. That's an opinion on my part.

MR. RENZ: Yeah, no and I agree with just about everything and I can't push TMI further into my history. It's there. Actually the communication between the licensee and state and locals at TMI was as poor as you can imagine. The licensee didn't know how to talk to the state and local stakeholders and the state and local stakeholders didn't understand the technology. We've come a long way.

For the same reasons Doug talked about, information coming out of Japan or similar reasons I think, we saw the same thing with the Ukraine in '86 with Chernobyl. But it's kind of like Japan didn't have their own TMI and maybe they didn't. We learned our lessons from other people's mistakes and we try to – we have a very robust process for incorporating that into our processes, our procedures, our training.

And although I agree completely with Doug's opinion on the amount of information – at least especially early on coming out of Fukushima – I don't know what their lessons learned are

going to be in five, 10 years, what their expectations are going to be. But I agree that we've been there, done that, and in this country that it would probably be more forthcoming.

MR. CONKLIN: I'd take a little bit of a different view actually because I think the industries are maybe a little bit further ahead than the federal government in this area from the standpoint that we are extremely cautious about any information we release because we feel that we really have to be right and accurate.

CNN and news media, they can put out a story and then they can come in five minutes later with a disclaimer saying here is an update, this is what was wrong. And I know from talking with my bosses that there's a great credence put on getting it right the first time because one of our fears is that we put out information and then we have to come back 30 minutes or an hour later and backtrack on it and say it was wrong.

You start losing credibility when you have to keep correcting yourself. So I think the federal family might be a little bit slower, a little bit more reserved in how well and how fast they release information. That seems to be a tendency that I've noticed. It's been a little over 22 years that I've been in the government working at these kinds of issues. And we have a tendency to be a little bit more cautious about the information we release, who we release it to because we really want to make sure that it's as accurate as it can be.

So while we would push for a quick release – and that's not to say that I'm not going to have my boss coming down to me saying, hey, talk to the NRC ,talk to the industry and give me what you know in five minutes. I'm sure that's going to happen.

MR. RENZ: (Chuckles.) I'm sure that's going to happen.

MR. CONKLIN: It's happened every time. But when we start piecing it together and getting it ready for the secretary to go on T.V. or on the radio to make an announcement or anybody else, then you get very cautious about making sure it's absolutely correct and all that. So in an ideal world, I think you would see something at the plant level come out. You'd have the local news folks release.

It's going to be very reactive because obviously CNN has helicopters in the air 24/7 around the world and they seem to be able to jump on things pretty quickly. So it's going to be very reactive.

But in an ideal world, that reactive mode would turn to being proactive at some point in time and the sooner we get to be proactive, then the release of information and the sharing of information, the better off I think that relationship with the general public and the effect on folks is going to be. But I think it's going to be tough. Every exercise I've ever been in – communications, the sharing of information and media activities has always been an issue –

MR. WALTERS: Challenging.

MR. CONKLIN: And a challenge – I don't think we've ever had an exercise when we didn't learn a lesson or two about those areas.

MR. PUMPHREY: I think the other part of your question that concerned an event around a cooling pool. I suppose – I would assume that those are the types of events would fall within thinkable category.

But perhaps we should just address that that, you know, in terms of exercises and you probably have limitations on what you can say about what you exercise around but is that something that – certainly a part of this crisis in Japan that seemed to have been unexpected but from the industry's perspective is this something you've given thought to? Either Bill or –

MR. RENZ: Yeah, from the industry perspective I think our focus is more on a greater impact – coming up with a scenario that might have a greater impact on the environment and therefore give your off-site response organization, your state and local stakeholders something to do during the exercise.

If you fix the plant too early, you know, they shut up, they turn around and go home. And I think fuel pools have never really been considered as significant as the reactors themselves. That may well – I'm sure it's receiving scrutiny already both from the NRC and INPO and the industry. But historically that has not been a main concern.

MR. CONKLIN: Yeah, I mean, maybe this will answer the gentleman's question but we've looked at, again, we've done studies on impact of spent fuels. They're pretty robust and I think Fukushima will show us that. Also the fuel is older fuel. So you do have time if you have some event to take action. So spent fuel is generally not much of a topic in scenarios.

But I think Fukushima is going to – and we are already, you know – well, we have that on our list of things we do need to look at. So it's a – you know, it's a legitimate topic given what occurred. But today I would tell you that they're safe, they're robust structures. The fuel is older. It's dispersed in a way that accommodates cooling in a much more efficient way and when it's a certain age, we move it out of there.

We put it in dry-cast storage and store it on site. And I think the public kind of understands that. It does – in saying all that though, I will say that talking about nuclear issues is sometimes very difficult because we use acronyms.

And you know, we have – last year we've been dealing with a non-safety issue where what we're talking about is millions of picocuries. Well, you tell somebody in the public it's a million anything, that's a problem. But in reality it's much below, you know, EPA standards and so forth.

So I think one of the challenges we have whenever we talk about and communicate on is doing it in a way that I think makes sense and is understandable and that's – it is a bit of a challenge for us. We have more acronyms I think than probably any industry in the world and

when you start – I mean, we can probably talk in acronyms all night and you wouldn't – you know, you wouldn't get the point.

So we need – I think that's another lesson for us, maybe even coming out of TMI and some other events is we've got to communicate in a way that the public understands and that, you know, is something they can relate to and that's sometimes a bit of a challenge.

MR. PUMPHREY: One of the issues that we say – and our program had done work around the Gulf oil spill and the response there and there seemed to be issues of communication between the industry and the government especially as the desire for being able to have the sort of political aspects of the government get involved in the response.

And through the work that you've done jointly, do you feel that there's a of bridge of those communications that can come up between and the differences between the cultures that exist within the industry and, say, what exists within the government or is this something that still needs more work or perhaps it doesn't exist in terms of the present culture.

MR. CONKLIN: Oh it definitely needs work and there's a definite cultural difference there and I don't think we've done ourselves a lot of service in some of the exercises we've done because when we conduct our exercises and we look at information sharing and the needs of the politicals versus the needs of the responders and the folks who are technologically involved in it, we've accelerated this sharing of information to a point that it's somewhat unrealistic.

The information is available too quickly, there's too much of it and it gives very false expectations of what could happen in a real event. And when we try to slow that down and play a real-world, if you will, you can just see the intensity of the folks desiring the information to get that information.

The political folks, obviously they have a constituency that they need to address. They've got very real issues that they need to be able to lay out on the table and show that they're knowledgeable of what's going on – not that they're command and control but that they're fully aware of what's going on and that they're involved with the effort and that they're concerned about the citizenry and the impact on the public and the environment and the economy and so forth.

So they need that information. But from a practitioner standpoint, we need to be able to really provide better, more realistic expectations of how soon that information's going to be available and it goes back to the thing about releasing information too soon because you could be very premature in the release of the information, you could have inaccurate data, inadequate data and we need to be careful about how we do that.

There's always going to be that push and pull I think between those two factions and I think that's the role of one of my jobs is having worked up through the technical side and been on the front lines, if you will, and now being headquartered here in Washington, being that interface between the folks who do the technological responses and the actual responses and the politicals because my boss is a political.

Just relaying the information as best I can but letting them know that, hey, this is the best we can do at this time and, you know, the details that you need just aren't not available right now. It's been a constant of all of our exercises but we've got to do a better job of managing expectations in that area.

MR. RENZ: I think it's more of a generic issue too. I think there's also a potential disconnect with – you know, if you have an exercise, an event and you're dealing with the bureau of rad health or department of health in a state, you might get up to a certain level where you stop having people who have had participation in these things. So there's almost a curve on educating as you move up the organization as well. I'm sure it happens at the federal level as swell.

MR. CONKLIN: Yeah, the turnover – you know, when you change administrations you bring a whole new set of players in. So whether it's how to respond to an incident or how to respond to a situation, how to communication, we're constantly retraining our senior managers or if you are in senior leadership on the processes that we've put in place.

You know, I may have worked through three or four versions of these federal response plan and I know this stuff inside and out, let's say, like a lot of other folks do. But when you're constantly changing management in administrations you've got to constantly retrain the folks. You're constantly relearning lessons at their level.

So there's a real onus on that midlevel management cadre, if you will, to bring the newcomers, if you will, up to speed as fast as you can so that they're prepared should an event happen.

I mean, the worst thing that could happen would be the president goes to the inauguration and January 22nd or something like that, a big event happens and you've got a whole new administration that is basically rookies when it comes to how to respond unless you're a carryover from a previous administration. So it's quite a challenge.

Q: Hi. My name is Binh Nguyen. I'm the chair for the Asian Advisory Board and also on the Radiation Advisory Board for the governor of the state of Virginia. We were in Richmond mystery having a meeting on radiation safety and of course emergency preparedness came up and you know, related to nuclear power plant.

And so I was really looking forward to this session tonight and so thank you very much for setting it up and thank you, the experts, for coming here. My question to all of you really is that we view ourselves as the bridge between the public and experts and then bring that knowledge to the policymakers such as at that state level. And so when we – when I listen to what you discussed, it's really more focused on protocols and plans for the government. But there isn't a whole lot of information for the public.

You did mention that there is some specific emergency plans for the public. But I think that there is a major lack of knowledge for the public how to react. So I think a very major factor

for emergency preparedness is actually to have the public prepared and respond not as a reactionary process but actually a proactive process. So if the public is aware and they know exactly what to do, then that would certainly help the process significantly.

For example, if you say if scenario A happens, we would like for you to do so and so and so and maybe not just have plan A but have plan B and C in case this road is blocked, that evacuation grid is blocked, for example. And it starts from small level emergencies such as a shooting for example. We have had our fair share at Virginia Tech, you know. We learned a lot from that lesson as well.

But you know, to have specific plans ahead of time so that the public is actually aware so all of that information is given to the public at this time, whatever that you have your expertise at this level and what's appropriate amount of information the public should have should be available so that they can help you and assist you in the evacuation process or in, you know, certain scenarios where they can actually help with the actual prevention of certain thing happening.

We talk a lot about communications and I think that it's great. But what if the telephone line is down, the landline is down. What if the computer is down? What if you can't Twitter or email or whatever? And people can't get access to T.V. or radio? Then what do you do?

So it's better to have specific instructions ahead of time. And so if in case of something that happened and the government can't spread – can't give out the information, the media can't reach a mass population, then at least they have the basic steps to start with and then later on when communication is reestablished then actually they can get more, you know, direct and appropriate information. So I would like to hear your opinions on that please. Thank you.

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MR. WALTERS: I agree.

(Laughter.)

Q: So what I would like to do is to touch base with you after this session to see what I can do as far as an advisory member of the board and bring that information and expertise to the governor, have town hall meetings with the public and gather all that information so that we can process into some sort of policy and at the level of schools, at the level – you know, children, what do you do when you can't reach, you know, the school where your children are? Then the school has a huge responsibility of evacuating thousands, maybe, of children or its students.

MR. RENZ: And they're part of the program. They really are. Each licensee does put out emergency information. It's about four pages long or so. You might see it in the phonebook in the areas of – (inaudible) – in this case, power stations.

But trying to get the citizenry educated is a huge challenge and so we look for opportunities. We have – emergency response organizations are quite often volunteers and all those volunteers have homes they go back to and do other social functions as well. So you're

making small inroads into the issue that you bring up. And if there's another way we could do our business better, we would love to proceed in that direction.

MR. CONKLIN: When I was at FEMA, I ran a program called the chemical stockpile emergency preparedness program – CSEPP for short. The purpose of that program was to ensure that the citizens and the communities around the sites where they were demilitarizing chemical warfare agents – nerve agents, mustard agents and things like that. We had eight facilities around the country.

That program had an extensive outreach effort to the community, to the schools. Communications systems – we would spend upwards, depending on the community, upwards of $20 to $30 million to ensure that we had interoperable communications throughout that community, whether you were the coroner, the police chief, the fire chief, the public works persons.

They were all on the same radio system so they could all communicate together in the event of an emergency. Now, obviously when you're talking warfare agents and nerve agents, you don't have the luxury of time. Some of these folks lived in houses that were right outside the fence boundary.

So they had basically – once the sirens went off, they might have three to four minutes in order for them to put themselves in their safe room in their house and things like that. So we actually had extensive outreach efforts and extensive training. And when we conducted our exercises we actually involved the students. We actually involved the citizens. We actually did evacuations.

We had medical emergency antidote kits that we actually – training kits that we used so that people could actually test themselves on how well they would actually know how to use these kinds of kits. I would recommend – and we can talk after this –t here's some contacts that I have at FEMA that could actually give you more details on the ins and outs of these programs as they currently exist.

But for the eight communities that we had, our annual budget for those eight communities was about $100 to $120 million. The thing is you can't replicate that across the country because now you're talking – I mean, that was eight states, 40 counties I'm thinking of – a very small number of actual communities and most of these facilities were not located in densely populated areas either fortunately.

But we had very extensive training efforts to do just what you're talking about. We did everything from overpressurizing schools and providing safe rooms in schools and their gymnasiums to actually going into individual homes and tightening them up, if you will, making them less permeable to air and things like that depending on where they were located.

So that's quite an extensive effort and you might want to get some information about that because that really gets to the nitty-gritty of really a whole community response because we actually I think led the nation in working with the disabled people.

MR. WALTERS: I really – excuse me – I certainly agree with Bill. One thing that comes to mind – I mean, there is an education piece, there is a notification piece. I think the NRC's revised regulation that will go into effect later this year has some improvements, if you will, in notification.

As far as education, I wouldn't – again, I think, you know, it would be worthwhile for you to probably talk with Bill. But one thing that I see a lot of plants starting to do or reengage in is in outreach is through their information centers. A number of – most sites have some sort of information center that the public can tour.

We after 9/11 kind of curtailed some of that activity but now we're starting to – I think most plants now have those reopened and in fact we've provided to all the operating plants kind of a model for what an information center or energy center ought to look like and displays and that kind of thing.

So while it doesn't necessarily get to specially informing them of, you know, what they would need to do in an emergency, it's outreach. I think they would have people there that would explain that. So I do see a move afoot on that front. It's going to be slow though. It's no question.

MR. PUMPHREY: Well, I think we're about out of time. But I thought it might be useful if each of our panelists have a final few words to say and perhaps focusing on you've described quite a bit about how things operate now. But if you had the ability to move us forward, what might be the areas you would see as the steps we should take to really improve our readiness for dealing with disasters, especially on a large scale. So who would like to start?

MR. WALTERS: My immediate response to that is something that Craig said and that's information sharing. I do think that that's a critical piece in the overall response at a – and I'm looking beyond just kind of a nuclear event – excuse me, an event at a nuclear plant.

I think any kind of hazard where you have some sort of catastrophic event – I mean information sharing I think is important. I agree we can improve in that area and I think we're making some inroads on that. I'll leave it at that. I think information for me is the one area where moving forward we need to focus.

MR. PUMPHREY: So Craig, you have to pick a different on. (Laughter.).

MR. WALTERS: I'm sorry.

MR. PUMPHREY: Just kidding.

MR. CONKLIN: Well, to me I think it gets down to the expertise of the people that we expect to help or to respond to these events. I think we really need to have a highly qualified, well-established cadre of people at the federal, state and local levels who really can do

emergency management and have sort of a firewall between them and the politicals who would be trying to influence how they respond and how they work.

I mean, in an idea world the response would be based on what the people see in front of them and not be driven by some other motives, if you will. Public health and safety, protecting the environment, I think is the key here and that if we can separate somehow that push and pull – those cultural differences that create difficulties I think for some of these folks to respond and do their job at the scene – I mean, really make sure that we're going to respond at the scene and that the command and control is going to be at the scene and not be pulled back to inside the Beltway.

MR. PUMPHREY: Bill?

MR. RENZ: Those were my two –

MR. PUMPHREY: Oh okay. (Laughter.) What they said.

MR. RENZ: No, no I'm kidding. I'm kidding. Actually I mentioned it earlier, if you have an issue that you're responding to and if you consider the application on other hazards or responses to other hazards or an all-hazards view, I think you'll strengthen your ability.

I think it was 10 or 15 years ago FEMA was quoted as saying that the level of preparedness in and around nuclear plants in this country, the local communities were better than communities that didn't have nuclear. Well, that's not fair to those communities that don't have nuclear because they have other hazards.

They have chemical or flooding or whatever they might have. So I think sharing the wealth, spreading the wealth – probably a more horizontal, generic building on preparedness which would make everybody a little bit more positioned for the unthinkable.

MR. PUMPHREY: Well, with that, please join me in thanking our panelists for a very terrific presentation. (Applause.)

(END)