DEFENSE FORUM FOUNDATION
Congressional Defense and Foreign Policy Forum

“The Existential Threat:
EMP and Combined-Arms Cyber Warfare”

Speaker:
Dr. Peter Vincent Pry
Chief of Staff
Congressional EMP Commission

Introductions:
Ambassador J. William Middendorf, II
Suzanne Scholte

Rayburn House Office Building, Capitol Hill
Washington, D.C.
Friday, September 29, 2017, 12:00 noon

SUZANNE SCHOLTE: Welcome to the Defense Forum Foundation’s Congressional Defense and Foreign Policy Forum. It is my pleasure to introduce somebody who I think is a national treasure, the chairman of the Defense Forum Foundation, Ambassador Bill Middendorf, who will introduce today’s speaker.

AMBASSADOR J. WILLIAM MIDDENDORF, II: Well, thank you very much. (applause). Today I’m also wearing my World War II Hat, and I served in the Pacific and we were, at that time Sudetenland occurred. We were very confident when Mr. (Neville) Chamberlain came back, waving a piece of paper saying, that we had peace in our time. I feel the same fighter’s stance today that we saw then, the same rhythm of the buildup
towards WW2. Hitler had aspirations for Europe and now we see China and North Vietnam, and they are intertwined. Now, we see Iran and Russia.

During the 1970s, I was your secretary of the Navy. We had to build our weapons systems with a 10 year lead time to get to the point where we could match the Soviet capabilities which we had anticipated at the height of the Cold War. During the late 80s, we were successful in building enough capability to offset the Soviets: the Trident submarine, the Aegis missile system, the F-18, the CH-53 helicopter and others.

And, in our post-mortems in 1991 in Moscow, with the heads of their militaries, they said they couldn’t match us and they had to tell us. They were running out of cash, and we kept expanding our capabilities. But, the communists are bullies and look for targets of opportunity - a bully by definition is a coward. And if we had to have peace through strength, because bullies won’t take the opportunity, but they await for the opportunity, for weakness. I suspect right now that most people do not realize that we are in the early phases of WW3 - We’re in the cyber war right now. Many of our weapons systems and capabilities have been downgraded. We do not know, none of us know, at the Pentagon, how many viruses have been planted to go off at the great nightfall. I don’t know how many years from now, five years from now, ten years from now. What we do know is if we’re going to live in freedom and peace, we have to be strong and we have to start building defense capabilities – to match adversaries, not trust what we see as their “intentions.”

We all remember in 1941, the Japanese ambassador was telling George Marshall how much they loved America. Intentions don’t mean anything. Hitler signed a piece of paper, we all thought his intentions were honorable. What he did with Mr. Chamberlain is an example: intentions mean nothing, they can change overnight. Capabilities is what you build your weapons systems against.

The Secretary of Navy, the Secretary of Defense, they have only one responsibility- and that is to build the weapon systems to match the capabilities of potential adversaries, 6 years, 10 years out. Because there’s a 10 year lead time to build any weapons system.

As chairman of the Defense Forum Foundation, it is my great honor to welcome you today. The Defense Forum Foundation was established in the 1980s for the specific purpose of giving Congressional staff the opportunity to hear from expert speakers on critical national security issues. As we are approaching our 40th year, we focus on the growing national security risk of a devastation that could occur from an EMP attack. And we have the best person to address this topic, Dr. Peter Vincent Pry, the Chief of Staff of the Congressional EMP Commission. He was the Executive Director on the Task Force on National Homeland Security, a Congressional advisory board dedicated to achieving protection of the United States from an EMP, cyber warfare, mass destruction, terrorism, and other threats to critical civilian infrastructures. Dr. Pry is also director of the U.S. Nuclear Strategy Forum, an advisory board to Congress on policies to counter weapons of mass destruction. He has written numerous books on national security issues, including "Blackout Wars"; "Apocalypse Unknown: The Struggle To Protect America From An Electromagnetic Pulse Catastrophe"; and "Electric Armageddon: Civil-Military Preparedness for An Electromagnetic Pulse Catastrophe"; and "War Scare: Russia and America on the Nuclear Brink." He often appears on TV and radio as an expert on national security issues. The BBC made his book "War Scare" into a two-hour TV documentary, and his book "Electric Armageddon" was the basis for another TV documentary made by National Geographic. DFF (Defense Forum Foundation) is extremely honored to have Dr. Pry here today. Thank you very much.
DR. PETER PRY: Thank you so much for that kind and generous introduction. Well, I’m speaking to you today as the Chief of Staff of the Congressional EMP Commission. It will be the last day of the life of the EMP Commission tomorrow. So the EMP Commission goes out of business tomorrow, after 17 years, on and off, of trying to educate the nation and trying to convince policymakers to take steps to protect our country from EMP, which still has not happened. I’ll talk to you about the technical aspects of the EMP, sort of “EMP 101.” I’m sure you all, I hope you all have heard of it, but I must tell you that with the Commission going out of business at this time, after all this time, I find myself never in greater despair than I am at this moment for the future of our country relative to the EMP threat because despite all of our efforts, it is still, it is still so badly, not well understood. Even this week on Fox News, an anonymous senior official from the Department of Homeland Security said “that EMP is merely a theoretical threat, and we don’t know what would happen if an EMP attack occurred, that it’s really controversial, and there’s many points of view on that. And we need to study the problem more before we do anything.”

It’s so poorly understood that, an author, this week, in popular mechanics would say “Well, if North Korea did an EMP, sure it would take out the electric grid and cause mass destruction of electronics, but it would actually be a good thing compared to a regular nuclear attack, a real nuclear attack because no one would die. It would be harmless to people.”

I just wonder how many people in this room think that and EMP attack is merely theoretical? [Pause] maybe you are embarrassed to say so. How many think no one would die? [Pause] Well, I’m glad to hear that. Okay, maybe we haven’t been a complete failure.

The reason I have dedicated much of my professional life to try to educate policymakers and the public about the EMP is because it's the greatest threat our civilization faces. Both from nature and from man. You know, the sun could make an EMP. Man can make an EMP with nuclear and non-nuclear weapons. We are so dependent on the electrical grid and the modern critical infrastructures, we are an electronic civilization. We cannot survive without our electronics.

While the direct effects of the EMP might pass harmlessly through your body, there are 500,000 people who would die if a super EMP weapon went off in the United States. Because at this moment, there’s half a million people in the sky, in airplanes. The fact that the pulse passes harmlessly through their bodies, but destroy the electromechanical systems of the airplane, thereby causing the 1500 airliners that are at any moment, overhead to crash, wouldn’t matter to them. They would die. A half million people. Right off the bat.

The electric grid, when it goes down, there’s no food and water immediately. The water immediately. The food supply will last about 3 days, then begin spoiling in 72 hours, because with emergency generated power we have to keep the big regional food warehouses operating. The air-conditioning systems, the temperature control systems that keeps the food palatable so that you can eat it. We’ve got a nation of 320 million people and a whole food supply about 30 days, which begin to spoil within 72 hours. Now the EMP commission hasn’t figured this out. Now, we tried back in 2001 and in 2008, how do we keep 320 million people alive for a year with no food and no water? You know what? You can’t do it.

And that’s why we estimated that 90% of the population could die in a year, from an EMP attack or EMP from the sun. That’s the answer to the threat being merely “theoretical” that argued that scientist. I have here a telegraph key from 1859. We’ve known since 1859 that EMP effects from nature are not merely theoretical. I’m going to pass this around to you so that you can see just how robust and heavy this thing is. You know it as an electronic piece of technology.
1859 Telegraph Key
This is about a billion times, a billion times less vulnerable to EMP than modern electronics, microelectronics that run on fractions of the volt. It took a lot of juice to run this thing. Here, let me just pass that around so that the people can see the technology of 1859.

That was the cutting edge technology made in 1859 when the Carrington Effect hit us, which was at that time, the most powerful solar storm known on record. The sun can make an EMP by firing a solar flare, basically, at us, which hits the earth’s magnetosphere and causes it to wobble around. We don’t get burned to a crisp from this huge blob of plasma that is many times larger than the earth, the magnetosphere saves us, it slides by. But the magnetosphere, getting disturbed and waving around like that, that’s what generates electricity, basically makes a natural EMP. That, in 1859, was picked up by telegraph stations that existed all over the world at the time.

The colonial powers built railroads in India, Africa, and China, and wherever they built a railroad, they also built telegraph lines. All over the world, the telegraph systems failed because things like that melted. Telegraph stations caught on fire, and the actual cable lines of the Telegraphs actually burst into flames and caused forest fires all over the world. The Aurora borealis was so bright, you could read newspapers in London at night, and it was seen on the equator.

That’s the “theoretical” threat of an EMP from the sun. And the EMP field struts that are generated even by the most powerful geomagnetic superstar known to us are less, much less than you would get from a nuclear EMP attack. Yet, the people we depend upon for our survival, or at least this anonymous person in the Department of Homeland Security, thinks the threat, still, as merely theoretical.

I’ll tell you some other things about why you shouldn’t believe it’s merely theoretical. We’ve got plenty of data from our own high altitude nuclear tests, but also from the Russian nuclear tests.

Russia really was an evil empire: during the Cold War and in 1961-1962, they conducted 7 EMP tests over their own territory, over Kazakhstan. The Kazaks were not highly valued by the Soviet Union, or by the Russians today. Kazakhstan was a built up, fairly industrialized area. It’s an area larger than Western Europe and had an electric grid, and they destroyed their own electric grid in Kazakhstan 6 times and then rebuilt it 6 times, just to be sure that they could use this as a weapon and could have high confidence that you could do a nuclear EMP attack that is going to take down the electric grids. Kazaks be damned.

That should also have told us that not only can you destroy electric grids, but you can rebuild them if you’re ready to do it and protect them. Russia today has the best data in the world on EMP effects.
But, we also have data on high altitude tests. We have 50 years of data from using EMP simulators because you don’t need to set off nuclear weapons. We have big trestles that you can put a whole B-52 bomber in, or at least we used to have them before the DoD (Department of Defense) dismantled them. We still have some of them for the testing and hardening of various things, but 50 years of data from these EMP simulators, not nuclear, to prove you can destroy all kinds of electronics with the EMP effects from nuclear EMP, and non-nuclear EMP weapons.

There’s the evidence from the enhanced EMP weapons. We talked a little bit about this before we met. I don’t know if you’ve seen CHAMP (Counter-electronics High-powered Microwave Advanced Missile Project) on television. This was a new Boeing-Lockheed Martin project. They have a cruise missile that has a non-nuclear EMP generator in the head and it can take down electric grids and destroy electronics in a whole building, or even in a county size region with the EMP there. Yet the size and the power of the EMP fields are trivial, compared to the EMP you get from nuclear weapons. So there’s further evidence.

If you need more proof, you in your own lives have experienced it. I’m sure everyone in this room has had the experience of driving down the highway, listening to the radio. And then you drive under a high power line, an electric power line, and suddenly you don’t have any radio communications any more - why is that? It’s called an electromagnetic transient, basically an electromagnetic field that is maybe one billionth of the power of something that you would get from a nuclear EMP attack, but it’s enough to take your radio out. You know the field strength is a fraction of a volt. The super EMP weapon can generate hundreds of thousands of volts per meter and destroy electronics, not just block them out. So why, any person who is considered as an expert on EMP would think that the threat is merely theoretical just boggles the mind. There we are, this week after 17 years of the EMP Commission, trying to teach people otherwise, we’ve got a senior official in the Department of Homeland Security who thinks the threat is merely theoretical and that cyber threats and physical sabotage of the grid deserve higher priority because these we know are not theoretical.

Now, one of the other findings of the Commission is that if you look at cyber warfare as the Russian and Chinese and North Koreans and Iranians plan it, whether you are looking at military text books, ‘No Contact Wars’ by the Russian general Vladimir Slipchenko, or Shen Weiguang’s ‘Total Information Warfare for People’s Liberation Army of China’, or passive defense for the Islamic Revolutionary Army in Iran - all of them have the same theme. They tend to be patterned after the Russian textbook. In fact the Iranian textbook actually pays tribute to Vladimir Slipchenko on the first page. And their idea of cyber warfare, information warfare, isn’t what we think of. And this might be one of the most important things I tell you about today, because we are way behind in our understanding of what they regard as this revolution in military affairs, a new way of warfare that would enable you to decisively win against your adversary. Their notion of total information warfare, cyber warfare, isn’t limited to computer viruses and hacking. It includes that, but it also includes physical sabotage against electric grids by special forces teams and nuclear EMP attack. A nuclear EMP attack in their doctrine is not a nuclear attack. It’s part of cyber warfare, and if they would have come at us with an all out cyber warfare operation, it would include a nuclear EMP. **Their notion of total information warfare, cyber warfare, isn’t limited to computer viruses and hacking. It includes that, but it also includes physical sabotage against electric grids by special forces teams and nuclear EMP attack. A nuclear EMP attack in their doctrine is not a nuclear attack. It’s part of cyber warfare, and if they would have come at us with an all out cyber warfare operation, it would include a nuclear EMP.**

Why do they think that is not the use of nuclear weapon? That doesn’t constitute crossing the red line into a nuclear warfare? Well, the way a nuclear attack happens is the weapon is detonated at a very high altitude, at least above 30 km. If you detonate at 30km altitude, that's where the EMP effect begins. You’ll get a field on the ground that's 600 km in radius. That’s a huge distance. Everything within that field would be at risk of destruction from that EMP, and beyond it in terms of electric grids, because the damage isn’t limited to the EMP field. It would cascade beyond the EMP fields and cause destructions elsewhere. Therefore, if you were able to get a nuclear weapon, it doesn’t have to be a super EMP weapon, or high yield weapon, these are other misconceptions that are out there by non-experts. Any kind of nuclear weapon will do it, even with a primitive
ten kiloton weapon. That would be enough, delivered by a weather balloon, hauled on one of these things up above 30 kilometers, to take down the eastern grid. And that would be enough to end us as a civilization, because 75% of our electricity, and most of our population lives in the Eastern grid. Most of our nuclear reactors are supported by the Eastern grid. There are about 100 nuclear reactors in the US, and in 7 days, they’ll all go “Fukushima”. Without getting power from the main grid to keep cool, the cooling ponds where the radioactive rods are stored and for keeping the nuclear reactor itself cool, in seven days when the emergency batteries run out, they’ll all go Fukushima. One hundred of them. And that would spread radioactivity all over the United States.

The thing that would kill most people would just be starvation; starvation, no water, no food for a year. So it’s a high tech way of killing people in the old fashioned way. Think of the EMP as an anti-technology weapon. That’s what it does; it subtracts from the equation from civilization, technology, then you try to survive without it? You can’t. The only reason we can support our population of 320 million Americans is because of our technology. If that goes away, we’ve lost.

Now, I’ve talked about the threat from nature, a little bit about the threat of man, that nuclear weapon if you raise it up to the altitude of 300 kilometers, which is the height of the two North Korean satellites that pass over us several times a day. That’s the altitude they are at. They can put an EMP field over all of North America - all of the United States, the contiguous 48 United States, most of Canada and Mexico, KMS 3 and KMS 4 are on an optimum trajectory to avoid our national missile defenses. They come up over the Antarctic and pass over the United States from the south to the north. That’s because we don’t have any ballistic missile early warning radars facing south. There’s a whole in our missile defense systems in the South. We don’t have any interceptors facing South either.

This is identical to what the Soviets had planned during the war as well, with their secret weapon called the fractional orbital bombardment system. They used a satellite, disguised nuclear weapon as satellite, and then orbited it on a polar trajectory. They got passed our missile defenses and get the EMP over the United States.

The Soviets were planning to use the EMP to paralyze our strategic forces, our commanding controls so that we could not retaliate, and then they watched the mass strike over the North Pole, to blow up our missiles and our silos, to blow up the bombers and bases.

The North Koreans don’t have enough weapons to do that, to actually launch a mass strike against our bomber bases and missile silos, and that doesn’t appear to be their plan. Their plan would just be to go after the civilian critical infrastructure, which has never been hardened against an EMP, because it’s a way of winning a war against the US, eliminating us as an actor from the world stage. Or perhaps blackmailing us - at some point where we decide that we’re going to take some action, maybe disarming them of their nuclear arsenal, and Kim Jong-Un might then say, “Wait a minute, I’ve got two satellites that can pose an EMP threat to you, don’t act against North Korea.”

There are also non-nuclear EMP weapons, we’ve talked about those. Now I’d like to talk about why is it that we’ve had 17 years and, even though the threat is real, there are so many people who don’t understand that it is not merely theoretical threat. Why haven’t we taken action to protect ourselves? I have my own views on this, and I happened to think they are true. I think one reason is because for sure is the electrical power industry, the North American Electrical Reliability Corporation (NERC) doesn’t want to do anything about it. NERC, were supposed to partner with US Federal Energy Regulatory Commission in protecting the grid. But what they are in reality is a lobby for the 3000 utilities. So they don’t want to protect the grid against, and they don’t want to spend money if they don’t have to.

It’s not just EMP that they are resistant to spending money about, they don’t want to protect the grid against cyber effects, they don’t even want to protect the grid against falling tree branches if they can avoid it.
Most of you are perhaps too young to remember this, but in 2003 there was a great blackout, called the Great Northeast Blackout of 2003. It was caused because a tree branch hit a powerline in Ohio and caused the northeastern United States, caused failures to cascade in the grid so that 50 million people in the northeast United States were put into a blackout for a day. People had to walk home across the Brooklyn Bridge - the subways wouldn’t run in New York City. It only lasted a day, so not many people died, but a small number people did die. But not many people died as it was regarded as an inconvenience, not a life threatening thing.

By the way, North Korea notices things like that, so do Russia and China. If the American grid is so fragile, so old, so overcast that a fallen tree branch in Ohio can blackout 50 million Americans, what would happen if you detonate a hydrogen bomb over the United States?

I can tell you, for sure, the blackout of the grid for a protracted period would be inevitable. We know for sure that would happen, contrary to what the anonymous official in the Department of Homeland Security thinks.

That’s one thing. Then, you’ve got this huge corporate interest and not doing anything. I mention that incident because the US Federal Energy Regulatory Commission asked for NERC that, “you know this is unacceptable, we can’t have this situation. Where a tree branch can put 50 million Americans in the dark even for a day, we have to do something about this!” That took NERC 10 years to come up with an improved, what they call ‘improved’ vegetation management plan’ to guard against the tree branches. Ten years! And it’s not clear that the plan will actually do the trick. So that’s the kind of resistance you’re facing.

We shouldn’t be surprised by this. The reason we have government, I’m not a fan of big government, I’m not a Tea Party Republican, and I want the government as small as possible and fewer regulations as possible. But we know from long experience, that some government is necessary, especially to provide public safety and national defense. I know I have many libertarian friends who are of the conviction that industry will protect itself, because it’s in its financial interests. But, over and over again, we know that is not true from the course of history. You know there was a time in this country where coca-cola really did have cocaine in it to help get people addicted to the drink and thumbs would show up in cans of peaches, because we didn’t have a pure food and drug agency, and there was no federal aviation administration at the time of the gas driven zeppelins. There was a whole zeppelin industry, including one that was going to start in the United States until the Hindenburg disaster, but the zeppelin industry convinced themselves that it’s okay not to spend a little more money on helium gas, which doesn’t explode. Through careful management, we can run hydrogen gas balloons, and eventually, at a perfect safety record, it was totally in their interests to make it safer to go to helium, but they didn’t do it. And Hindenburg put them all out of business. Maybe if there had been a Federal Aviation Administration back in the 1920s, zeppelin travel would still be a supplement to airline travel. Now, it’s an artifact of the past.

Union Carbide didn’t want to follow, for manufacturing insecticides, didn’t want to follow the food and drug safety regulations for that here in the United States, so they moved their plant to Bhopal, India, and we had one of the greatest industrial disasters in human history. Literally tens of thousands of people died from insecticide poisoning when that happened and Union Carbide is still paying the bill, and people are still dying from that disaster.

So I am a big believer in the invisible hand of Adam Smith and the free enterprise system, it is the most ingenious system ever for organizing an economy and providing goods and services at the lowest possible cost, but we know from our experience that we also need government to do things like regulate electric power industries, regulate airlines, regulate manufacturers of insecticide and automobiles to make, for the public safety and for the national security.

That isn’t happening for EMP. And there’s more than just the industry often hitting them. Another part of the problem, and probably the bigger part of the problem, because I expect the industry is always resistant to regulations, they always will. It’s not that NERC is evil, it is just that’s the way the merchant should behave.
For any situation that you can imagine whether it is cigarettes or anything, whenever you got that dollar of profit in this hand, and if they are asked “well, am I going to use this to protect people against the possibility of nuclear EMP attack from terrorists or once in a century geomagnetic super storm or am I going to put that in my pocket?”, they always put that extra surplus dollar in their pocket and not pay that stuff unless government tells them to do otherwise. The problem is our government isn’t telling them to do otherwise, because we have guys like the anonymous official at the Department of Homeland Security. Because even though, we’re a year into a new administration, that I know that at White House level knows about EMP and cares about EMP, we have a Secretary of Defense that would not take a briefing from Dr. William Graham, the Director of the EMP Commission, who is the world’s foremost expert on EMP. Wouldn’t take a briefing from him. We have the Secretary of Defense that allowed an Obama hold-over from the Department of Defense to sabotage the work of EMP Commission, to sabotage and undermine our work. We were able to get our funding from them, security clearances, so that we could work for six months. We were given 18 months to do our work. We were only able to work with all the support we are supposed to have for 6 months. And they were allowed to get away with that. They abused this Congressional Commission.

Last year we passed the Critical Infrastructure Protection Act through the efforts of Senator Ron Johnson and through the efforts of Representative Trent Franks, we managed to get a very important bill passed, called the Critical Infrastructure Protection Act, that for the first time, required the Department of Homeland Security to start planning against natural and nuclear EMP scenarios, and start developing plans to protect and recover the electrical grid and other critical infrastructures from EMP. They are required to deliver a report to Congress by this December on their progress. The Critical Infrastructure Protection Act was passed last December, and this December they owe a report to the Congress on their progress.

When I was young, even now that I am old, I always wanted my life to count for something. If I was given an opportunity when I was your age, and I was a staffer at the Department of Homeland Security, and somebody told me “Look, Congress wants you to protect the American people from this existential threat that could kill 9 out of 10 Americans within the year, and I’m turning this problem over to you. Please work this problem and come up with a plan. The day after that plan was signed into law by the president,” and I am sure all of you too, I would have been working on that plan, I would have been trying to do the best job I possibly could, not just to earn my keep but so my life would matter and that I could make a difference in the survival of the American people.

When do you think the DHS EMP taskforce would deliver this report to Congress? We got stood up, we got stood up last week. It’s already September, did they talk to the EMP Commission? They didn’t even want to meet with us so that we could brief to them. They had telephone conversations yesterday, teleconference yesterday, just Dr. Graham and myself. If I was a suspicious person, a cynical person, I would say that they’re not serious about protecting the country from an EMP and that this is just a box checking exercise so that they can say they talked to the EMP Commission just before it’s going out of business.

Interestingly, the nine people on this DHS EMP task force wouldn’t give us their names. We didn’t know who we were talking to, except I knew who the chief was, because one of them had to give us their names in order to arrange the telephone conversation. I knew the other guy, because I recognized his voice. And then he sort of said, I asked “is that you?”, then he confirmed it. The others kept us in the dark, in terms of who they were.

So this is part of the problem; why are people like that? Why would they wait and not seize this opportunity against this very real threat? I think in part, it’s because the way government operates. People don’t get fired.
These jobs become sinecures. It doesn’t matter how incompetent people are, how wrong they are, how often you prove them wrong, how much damage they’ve done for the country - even when it's demonstrated, they get to do it over and over again.

And I think you can prove this just by looking, for example, at the Iran nuclear deal. Who were in the right minds? Look what happened in North Korea. The same people who negotiated the agreed framework with North Korea were then entrusted with negotiating the Iran Nuclear Deal. In the private sector, it wouldn’t work that way because people do get fired in the private sector, and performance matters in the private sector. And if your negotiations ended up delivering us this catastrophe that we’ve got with a nuclear armed North Korea, you think you might be a little skeptical and say, “you know, this team didn’t work out very well in North Korea. Maybe we need somebody else with a different point of view in negotiating with Iran.”

So, even at the highest level, you can screw up big time, and keep your job and even be promoted and rewarded. That’s actually what has happened in this administration. Two people during the Obama years that gave us the biggest problem about making progress on EMPs have been promoted. In this administration, one of them has been promoted in the Department of Energy, and the other has been promoted in the Department of Homeland Security. The chairman of the Department of Energy wouldn’t take a briefing from us either on EMP.

So, that’s the other part of the problem. You’ve got the usual problems from the private sector that doesn’t want to do with anything, and you’ve got the big problem of gross incompetence in government where people who are proven incompetent and are ignorant of these things, simply because they have a seat, they assume that they know everything, they don’t have anything to learn, and they don’t learn anything. So they keep repeating the same mistakes over and over again. And then the final element that makes matters worse, is the rotating door between government and private sector. There’s not a lot of money to be made. The EMP hardly, it is not a big industry. It’s a small industry. The electric power industry is huge industry! You can make a lot of money being an executive in an electric power industry or working for one of the think tanks like Electric Power Research Institute or Edison Electric Institute.

So if you are a civil servant at DHS or one of these other things, and it's in your power to make a decision about whether to harden the grid, and that’s going to make you unpopular in the industry if you do that, maybe you’re more interested in protecting your sinecure or what you are thinking about is not the security of people, but the possibility of retiring into some cushy job in EPRI Europe or elsewhere. And if I were a cynical person, I might think that might be a contributing factor to why we haven’t done anything, either.

I guess the last thing I’d like to say is, there is a provision, some of you are Hill staffers, you’re probably not in a position to do anything about it, but you might as well, I just want to inform you - some would argue, well the EMP Commission is not actually going out of business, it’s going to continue because there’s a provision in the House Armed Services Committee bill to continue the EMP Commission. But actually if you read that bill carefully, it closes down the original EMP Commission and it’s going to start a new commission with 12 new commissioners. This is clearly written by an illiterate on EMP, because you’re not going to be able to find 12 real EMP experts, who have the kinds of qualifications that we have on the original EMP commissioners, people who are not just technically experts, but who have also had executive experience. People like Dr. Graham, who have been advisors to presidents and who have run NASA, in addition to being the foremost technical expert in the free world. People like Dr. John Foster, who is the director of Lawrence Livermore National Laboratory and has designed most of the nuclear weapons that are currently in the US inventory. I mean, you don’t find people like that just out there, waiting to be commissioners. Or like Lowell Wood, who designed the other nuclear weapons that are in our current inventory and is the most inventive man in America, some people call him the smartest man in America because he has more patents than any other American in history - including Thomas Edison. You know, that is the quality of mind, the caliber of mind that we got on the current EMP Commission, and there are many others among the commissioners and staff - there's no substitute for people like that.
It’s sort of like the Manhattan Project, well, I’m not happy with Albert Einstein and Robert Oppenheimer, you know, these guys don’t get along with the bureaucrats in the Department of Defense, so I’m going to bring somebody else in to design the atomic bomb. That’s basically what has happened. And there are Congressional staff who are naïve enough to think that. The one bright spot in this litany is the White House tried to make a difference, and tried to weigh in here. The National Security Council staff called and said, “What are you doing to the EMP Commission, why are you trying to replace or even end it”? And, the staffer said, “They’re just a bunch of useless old men in their 80s.” Useless old men in their 80s. And, that was not that long ago.

So this would probably be the last time I ever speak to anybody as a Chief of Staff of the Congressional EMP Commission and I’ve never been in more despair about the future of our country. I find incredibly ironic.

Well, Congressmen Weldon who was the original one, former Congressmen Weldon, the only Congressmen to ever be the Vice Chairman of both House Armed Services Committee and the House Homeland Security Committee at the same time, one of the truly great Members of the Congress, you know we have an actual missile defense because of Congressmen Weldon and his Bill HR1.

He wrote in a letter of protest to Capitol Hill a couple of weeks back and said “only Washington bureaucrats could be so stupid that in the same month that North Korea has made an EMP threat against the United States, and demonstrated their capability, follow through with that threat, that the logical decision at Washington, the reaction of Washington to that, is to close down the one commission that is trying to do something to protect the country.” And that’s where we are and that’s actually what’s happened.

So, I was going to limit myself to 30 minutes, we want to leave some time for questions if there are any. So, I will turn the floor over to the audience at this point.

Thank you for hearing me out. [Applause].

Q) So, when you are talking about these utility companies around the country, being reluctant to make sure to prepare for something like an EMP attack... what can actually be done? Is there any technology that needs to be replaced? The entire grid, that can prevent this from happening and is it something happen regardless? That’s what I am wondering about it. Whether there is something that happens regardless anyway even if we replace that.

PRY: They should know this from reading the Commission’s reports and the numerous briefings we’ve given over 17 years, but there’s no excuse for the country being vulnerable for EMP. We know how to protect against it. The Department of Defense is going to protect its systems for 50 years against EMP, that’s why we have EMP Commission, even the Obama administration. There’s an incredible dichotomy. Here’s another sort of common sense thing somebody tells you that EMP is a threat that’s just theoretical. If it is just theoretical threat, how come the Obama administration spent nearly a billion dollars last year to further harden the NORAD Headquarters inside Cheyenne Mountain? Plus, other critical command and control nodes against a nuclear EMP attack from North Korea. You know, that’s what they did. There’s a huge dichotomy whether our requirements in DoD, they hardened their stuff. We also know from our experience in DoD that if you design EMP hardness into a system, it only adds one to six percent the cost. And the Commission in its 2008 study estimated that we could probably protect electric grid and harden the critical elements, the transformers, the generators, status systems, control systems for about two billion dollars. Not every year, one time in expenditure. That’s what we give away foreign aid to Pakistan every year. So, you know, if we suspend the foreign aid to Pakistan for one year and spend it on the security the American people, we could make a lot of this problem go away.

The electric power industry still insists, “Oh, no, we’ve got to do more studies,” and the Department of Energy and Department of Homeland Security are co-conspirers in that lie. And their plan, they’re saying, if you would talk to them, they will say, “Oh that Peter Pry is exaggerating this, we are serious about EMP. We’ve got these studies going on and the studies are going to go out in 2020.” And in 2020, they are going to have their studies
completed and then they’ll make a decision about whether they’ll make a decision about whether you can cost-effectively harden the electric grid.

We’ve got a project going on now, make a lot of business now that may go out of business now that the Commission is going out of business, but we’ve called it the Louisiana project because all the planets lined up.

There are a lot of people in Louisiana who belonged to info-guard and just private citizens who became concerned about EMP who complained to the Louisiana Public Service Commission.

And there’s a visionary chairman, a Louisiana Public Service Commission, who is aware of the Critical Infrastructure Protection Act that requires the Department of Homeland Security to launch pilot projects, educate the states and help them to launch pilot projects. So, the PSC wrote to the then Secretary of Homeland Security General Kelly who was another bright spot on this, when General Kelly was the Director of DHS, he approved it. He said “Yes, DHS got to help the state of Louisiana do a pilot project to do a study and see can we protect the Louisiana grid, and how much is it going to cost?” And we’ve got a project going forward, had a project, which is still going forward. I don’t know if we’ll be able to continue once the Commission goes out of business. But the object there was to prove to anybody, you could protect the electrical grid right now. It was saying that the existing technology and that it can be done very cost-effectively. So, we do know how to do it, and the Commission was in the process of trying to prove this.

Q) What is the difference between this and newer technology? Is most of the newer technology able to do it or generally protect against or is it just the older technology but they just don’t know how to use it. What is the differences in technology between what does protect it and doesn’t?

PRY: Well, the technology that we would want to use is THE same kind of technology the Department of Defense uses - surge arresters, Faraday cages, blocking devices. Your personal computer, if you look at the plug on your personal computer, those on the wall, alright? It’s a fat plug, it’s not a normal size plug. That’s because you’ve got a little surge arrester in that plug so that if there’s a lightning strike in the power line, that doesn’t destroy your computer, right? We call that E2 EMP. And so everything is pretty much protective against that. The same thing you can scale that up to deal with the most powerful electromagnetic pulses, like the E1 EMP. Faraday cages – real old, it’s a 19th century technologies. You can make a Faraday cage at home with the metal garbage can with a tight fitting lid, and have a plastic bag and put the electronics in the plastic bags so that it doesn’t touch the interior. You can design status have to be protected from the weather; instead of putting them in the plastic shed, putting them in the metal shed. Inside of the metal shed in such a way so that it’s a natural Faraday cage. These are not hard things to do. They are not expensive things you can do. But you have to do something, you know?

The alternatives that this industry wants to do, for example, the Electric Power Research Institute put out the bogus study in the past couple of months that claims if the hydrogen bomb went off above the United States and the EMP attack, not one EHV transformer would be destroyed. And therefore they don’t have to do anything. We don’t have to do anything because the Commission is wrong. We wouldn’t lose hundreds of the transformers. This is written by a guy who does have a degree in an Electrical Engineering but he doesn’t have specialty in electromagnetic pulse physics. He has never worked in the Defense Department or intelligence community, for any defensive contractor, but suddenly, he is an EMP expert. And there are a lot of people like that out there that are willing to say anything if you cross their palm with the dollar. You’ve asked the question, “How is that just possible?” I’ll summarize everything I’ve learned in Washington in 30 years in one sentence. The bigger the problem is, the easier for everyone to walk away from it.
Q) My question to you is, you get a brief sketch of and you kind of touched on it a second ago, a brief sketch of where DoD’s efforts to harden itself are on the scale, you know, one to ten versus everyone else?

PRY: Well, I have to give them a 10 compared to everybody else. But we ARE still not happy with where the DoD is at. I can’t get, whenever you start to talk about potential military vulnerabilities, it is immediately secret. But I’ll just point out one thing, I’ll offer an example of where we have our own efficiency. I mean, we now know that even North Korea understands super EMP weapons. Two days after their successful hydrogen bomb tests, they put out a technical paper on September 4th called the EMP might of nuclear weapons. And which they accurately described how a super EMP weapon would work. We have been predicting since 2004 that they probably got the design information from the Russia to do this.

It’s not hard to make super EMP weapon. You know, super EMP weapons can generate up to 200,000volts/meter. That is for every meter of length of your target, it gets 200,000 volts inserted into a nanosecond. So, if the cord of your personal computer is two meters long, it’s going to get 400,000 volts inserted within a nanosecond.

An automobile is what, 4 meters long? So that’s the 800,000 volts that gets inserted in a second. Think of the dimensions of the airplane. How much voltage that thing is going to pick up? It’s going to be millions of volts, inserted in a second. During the Cold War, we dismantled, we don’t have a single EMP simulator in this country that can test this. Higher than 50,000 volts. Back in the cold war we were hardening against nuclear weapons of normal design, ordinary design. And the theory then was that, well, 50,000 volts is going to be a maximum threat, but that turned out not to be true. The best EMP simulator he had was the Trestle, out at Sandia. You could put a whole B 52 bomber in it, and go up to 50,000 volts. And they dismantled that, we don’t even have the Trestle anymore. We have other simulators but none of them go up that high. The Russians, the Chinese, have gotten EMP simulators that are going up to 200,000 volts /meter.

So, in terms of military to military preparedness, you can draw the inferences by yourself how well prepared we may or may not be, just based on our EMP simulators capabilities. But, compared to the electric power industry, you know the civilian critical infrastructures which have never been hardened and DoD’s lightyears ahead of them. I mean, they are doing a lot compared to them. That’s why most of our firewalls are not at the Department of Defense, then at civilian. Besides, the North Korea and Iran countries like that or the terrorists, they are not really interested in going after our military assets. I mean that’s not the main reason they want to do the EMP attack. They want to kill the people. They want to basically destroy us as a civilization and go after our electric grids, communications systems and destroy them with the EMP.

Q) You referred to a lot of electrical grid and military assets that are at risks against EMP. What’s your take on civilian electronics, more importantly, vehicles. Because I thought any cars controlled electronically and especially ones that aren’t truly mechanical, are all at risks as electricity is basically to be shut down because of EMP attack.

PRY: That’s right. There’ll be massive failures with automobiles because they all depend on electronics and semi-conductors. It wouldn’t be that hard though to harden it. You could even do it in yourself. The material cost will be less than 100 dollars to harden automobile against the EMP. There are these things you can buy at electronic stores, the kinds of things you snap off the wires of personal computers if you have tangle of wires. And they are like a Faraday caged with wires. The EMP, in order to get all the semi-conductors it has to be covered with wires that’s 18 inches long or longer. So if you have long wires and if you can hire a mechanic to do it, you don’t need to do it yourself.

It wouldn’t be perfect, it wouldn’t be a perfect solution, but it will greatly increase the hardness of that car. And of course, a lot of people buy cars that are pre-1970s era cars before we started to put in modern electronics into it. And that’s another way of being safe. But right now, we haven’t done anything to harden our automobiles.
mean I think the automobile companies ought to be doing it automatically when they manufacture these cars. It is not hard to harden the car, but we don’t do it. So, we have massive failure to our transportation systems, same thing with airplanes.

Q) If you could make a guess, if North Koreans launch AN EMP attack, how many high altitude EMP weapon the nation would require to have an affect? Maybe ten or more would do the job?

PRY: You only need one. You only need one nuclear weapon. It could be delivered by a balloon. That balloon scenario that I told you before over the Eastern seaboard, one weapon would shut it down. And this is just a common sense too, because much of this Eastern grid was shut down by a falling tree branch in 2003. We are not really sure if it’s really been improved, stand up against tree branches.

The EMP field from a weapon, it is going to cost millions of failures in the electronic systems within a radius of 600 km. That’s definitely going to ripple from the whole Eastern grid and cost the Eastern grid to collapse. For protracting period, it will destroy many transformers, it will destroy all kinds of things. Any kind of nuclear weapon, it doesn’t have to be high-yield, it doesn’t have to be a super weapon and that’s well within North Korean ability.

Even, exercise a different scenario, we think, in 2013, during that same nuclear crisis that was going on, we intercepted a North Korean Frater trying to sneak back to the North Korea through Panama Canal had already transited in Gulf of Mexico. And, hidden under 1,000 batches of sugar, we found two SA2, nuclear capable missiles in the whole frater under watchers. They didn’t have a nuclear warheads on them, but it looked to us like they were practicing this new way of the warfare that combines cyber, with EMP and physical sabotage, because that’s another way you can do it. And the attack could be done anonymously. That’s the other thing. A lot of people said, “Well, North Korea would never attack us. No one would. Because we would retaliate, right?” Retaliation and deterrence and only works when we know who’s attacking.

If they use one of these satellites, for example, to do the attack, there are hundreds of satellites in LEO. And, the first thing that EMP does is that it shuts down our national technical means -the radars, our satellites, our satellite ground stations - we depend on this intelligences, high tech intelligences technology that tell us who made the attack. We wouldn’t know it necessarily if it was a satellite. It could be a ballistic missile launched off of frater and somebody else could be doing it. It could be terrorists, you know. If you do it off of frater, that’s the another way of escaping responsibility for doing it.

Even terrorists have the access to ballistic missiles that can do EMP attack. Houthis in Yemen killed the Chief of Saudi Arabian Airforce a couple of years ago with the successful Scud launch from the King Khalid Airforce Base. North Korea had actually supplied them with Scud missiles that are capable of doing the EMP attack.

Anybody who’s got their hands on the Scud, all they need is the nuclear weapon and any kind of short range missile. The SA2 happens to be particularly well-suited for EMP attack because it designed for high-altitude interception bombers. And the idea there is that you would have launched it over the eastern grid from Gulf of Mexico.

And, we only found out about it, we never would’ve been known if they had to try to go back through the Panama Canal. The only reason we inspected it is this frater was notorious for smuggling drugs and small arms to the criminal gangs and terrorist groups. And they were looking for drugs, but they found this two nuclear capable missiles in the whole.

Q) If I remember correctly, you said that manufacture of these system only adds one to six percent the cost to harden beforehand. That hardening process, is that more or less 100 percent effective at these fridges, microwaves and TVs, all of that would be 100 percent impervious to EMP attacks?
PRY: Yes, you can make it pretty impervious

Q) Regarding preventing an attack by North Korea, some say a military option is the only solution but, we cannot do that because Seoul will be within the range, they say. Secretary of Defense said that there is another way of a military attack without sacrificing Seoul. Did he consider that an EMP attack on Pyongyang could paralyze the North Korean regime so that none of them could attack South Korea?

A: We can do non-nuclear EMP attacks. But first what let me say, my answer to your question is my personal view. It doesn’t represent the official view of EMP Commission, okay? I just published an article yesterday in Washington Times on security matters, talking about a disarming strike against North Korea, how I think you could do that. Then again, that is my personal view.

We do have realistic military options, contrary to what’s been widely put out. You know, when you look at the order of battle of North Korea – they’ve got two satellites which are the biggest threats to the United States. They’ve got fewer than 12 ICBMs at this point. They’ve only got no more than 12 ICBMS, probably fewer than that. They’re mobile ICBMs and they decided to hide them in tunnels, but our people have been looking for those since -- for years -- and we have a really good idea about where they’d be in the field, and where their tunnels are.

They only have 30-50 intermediate range missiles, the Musudans. Same thing there to their mobile, but we’ve been looking at their patrol areas and where they would hide. And, you know, they’ve got about 16 bombers that could carry a nuclear weapon and one submarine with twelve hulls to build in. They’ve got the Sinpo-1 that is operational, but 12 others under construction. So, that’s fewer than 150 targets. Fewer than the 150 targets. I think for sure we can take the satellites out immediately. And that would be the first time in 25 years of United States would have struck a blow to back up the verbiage if we are serious about disarming North Korea by military force. I would recommend a strategic pause to let that sink in to North Korea, Russia and China, if they were serious.

If that does not result in a diplomatic solution, that would eliminate the greatest potential threat to the American people by taking out those two satellites as well as sending this important diplomatic signal to North Korea at large. Then, after this I go after the ICBMs, the bombers, the Sinpo-1 submarine, 12 hulls under construction, and all of intermediate range ballistic missiles. That’s less than 150 targets altogether. I’m sure three aircraft carriers and our mobile strike forces can take all of that out in a few hours.

Everyone says, well, Kim Jung Eun is certainly going to retaliate, right? In any kind of attack. That’s not necessarily true. There are some history here we can look at. There are other historically psychopathic megalomaniacs just like Kim Jung Eun, who have been in similar situations. Adolf Hitler, when he was waiting for the Russians, to come for him in the Führer bunker, never resorted to use in this scenario sarin nerve gas. He was hoping to cut the deal with the allies, and he was grasping a hope that he wouldn’t have to escalate that high, because he feared the retaliation would be used against German troops, against Germany.

And Saddam Hussein didn’t retaliate against Israel when in 1987, they took the Osirak nuclear reactor. In both Persian Gulf Wars, he had huge storages of chemical and biological weapons and he knew his life was on the line when he lost those wars. But he didn’t use them; he was deterred. Intra-war deterrence can work.

Even a megalomaniac, aggressive megalomaniac like Saddam Hussein or Kim Jung Eun will refrain from crossing the line that would surely result in their own death, grasping at straws, hoping that he won’t have to face complete loss of power and that he would be left alone. And that’s what we would be doing. We wouldn’t be seeking the regime change. This would be a conventional, non-nuclear, limited nuclear strike to just take out those forces that pose a threat to the United States. If we took out those 150 targets, North Korea will be bereft, disarmed of its capabilities to threaten the United States and U.S territories.
Now, Japan and South Korea would still be at risk in this scenario, because Kim would still retain hundreds of short range ballistic missiles and medium range ballistic missiles. Most of them are not nuclear, some of them probably have nuclear weapons. Mostly they are conventional, chemical and biological. But that could be his security blanket, because the attack would be done swiftly and would be over very quickly. He could still have his substantial short and medium range ballistic missile forces that haven’t been attacked at all, to protect his regime and plus, an army of 1.2 million man, 7700 armored vehicles, and the air force of 500, right? All of this would be his security blanket.

I think it highly unlikely that Kim Jung Eun would escalate and use the nuclear weapons and make a mass artillery barrage on Seoul to destroy Seoul, knowing that we would then go to the nuclear option ourselves and turn North Korea to a plate of glass and kill him.

He is a psychopath, but just like Hitler he’s not suicidal. He doesn’t want to die. He has every reason to think under this scenario, that he would still remain in power.

So we do have, I think, a very realistic military option available to us. I fear that the administration is being seduced by our State Department into this fiction that there’s a China solution that we play the China card against the North Korea and continue to negotiate and eventually find a negotiated diplomatic solution. That hasn’t worked in 25 years. And I think I know why it hasn’t worked in 25 years. If you look at the technology that North Koreans have, they didn’t get there on their own. It’s Chinese and Russian technology. The North Korean nuclear threat has been provided to them by China and Russia. There is more at stake here than just North Korea. They’ve been playing a deuce strategic chess game against us, Russia and China. North Korea is a proxy missile threat from Russia and China. What they are looking for is not just victory in the Pacific, but changing the world order. They hope through raising the stakes so high, and make the North Korea threat so immediate, and so dangerous to the United States, that those Americans who are tired of being a global policeman, and there’s many of them, they are growing in number, are going to say, “Look, this is just too dangerous. We’ve got to bring the boys home. We can’t continue to guarantee, provide security guarantees to Japan and South Korea. It is too dangerous. Let’s bring the boys home.” That’s a way of winning the new Cold War there waging against us without actually going to war. They are playing this Chess game.

But I think Russia and China are also prepared to go to war through North Korea against us. If they have to deliver some damage to us or our allies to push us over that line, they’ll do it. And we’re making a huge strategic mistake, I am getting out of my lane here perhaps, but this is my view that, by begging to solve this problem for us, we are actually playing into their hands. What is that telling our allies? South Korea and Japan? The United States is telling them that the United States is incapable, underrating their security, and their security is in the hands of China and Russia. Our allies will eventually, if we keep doing that, they are going to eventually say “well we’ve got the wrong big dog”, for sure. And I’m sure that they are having these discussions. I don’t know our State Department is smart enough to think about this.

I’m sure the Japanese and South Koreans are at some point got to be thinking, maybe we’re on the wrong side. You know, maybe if we reach an accommodation with Russia and China, the North Korea threat will go away. And you know, it would. Because that’s what this is all about. They want to drive the United States out of its role as being a global policeman, without war if possible, but they’ll use North Korea to kill the global policeman if necessary, and replace us in a power vacuum, step into that power vacuum so that they, and they are allies of North Korea and Iran, will now basically dominate the world order.

Q) To create an EMP field, is it just a fusion device, or is it the fission device?

PRY: Absolutely. All nuclear weapons, atomic weapons, fission weapons, a crude 10 kiloton Hiroshima type bomb will generate the EMP that’s good enough to basically destroy our civilization and take down the Eastern grid.
Q) 10 kiloton bomb detonated at 300km above the surface would it be enough to take out US electric grid?

PRY: Yes, you could do at 30km. That would maximize the field and obviously it is not nearly as strong as what you would get from super EMP weapon but super EMP are designed to paralyze our hardened strategic command and control. But even at 10 kilaton weapon, it’s going to be 3,000 volts/meter on the horizon.

Here’s another thing. You don’t need to be a big scientist or anything. There’s an electric outlet over there on that wall. What are your electronics? What comes out of that? That’s a 120 volts, right? That’s because that’s what most electronic thing, appliances, everything runs on it, 120 volts.

Personal computers run on a lot less; that fat plug in addition to providing the surge protectors, also little transformers, because your personal computers, and semi-conductors, they are running on tens of volts. So just knowing that, does anyone think that this is uncertain or theoretical that if you take the system that design to run out of 120 volts or much less that, and if you put it into a EMP field of 3,000 volts that it’s going to survive? The 3000 volts are coming out of that outlet, and by accident, let’s suppose if the engineer in the building was intending to put some huge emergency generator that needed 3000 volts, but they didn’t mark it? Then you stuck the plug into that, what do you think would happen? IT’s a disaster!

So, even this is one of the other myths of out there by non-experts that say, you need a really big high yield weapon, and actually I must say, my own research was partly responsible for that. One of the things that wasn’t mentioned, that I worked for the CIA for 10 years. And I was their senior guy at EMP. And one of the things that we found, I can say this now because it was mentioned in an unclassified hearing, a Congressional hearing, that we found which weapon that the Soviets had dedicated to the EMP mission to use against our military force. It was the SS-18 mod 1. And they did that, because we were wondering, why they were keeping handfuls of these great, big single warhead, it had a big 25 megaton warhead on it?

They could’ve put in their new SS-18 mod 4s and 5s, each of those could carry 10 warheads, but they weren’t doing it. In fact they were giving very high priority, they were even lying to us about it, wanting us to think that these were modernized ICBMs, newer ICBMs that had more warhead. They tried to fool us and hide the fact that they still had these big 25 megaton warheads on some of these, small number of ICBMs. What could they’ve been doing with that?

We figured out it was an EMP mission and that they were going to use this big 25 megaton warhead. But that got into the Congressional record and ever since that day, I keep hearing this nonsense that, “oh you need a 25 megaton warhead doing EMP attack.” That is not true. They had a big high yield warhead like that because they wanted to destroy our hardened communications and strategic forces that we’re going for hardener. They are trying to win a nuclear war and disarm our nuclear forces.

If you want to keep down on electrical grid, communications systems, and food systems, all the transportation networks and alike, any nuclear weapon will do it. 10 kiloton weapon is plenty to do it.

Q) Super EMP device could take down the most hardened devices?

PRY: Well, if it’s not hardened to 100 kilovolts or 200kilo volts/meter, it’s not going to survive for sure.

Q) What do you want for hardened device up to?

PRY: The most is the 50 kilovolts/meter. That’s one eighths of what you would need against a 50 kilovolts per meter; because that’s the highest that we use. That’s the highest field that a 25 megaton warhead could make. Back in the Cold War we would make a 50,000 volts/meter. That’s what, from an EMP world point of view, so great about the super EMP weapons because at that time people thought that was the highest maximum EMP they could get. And they were right for nuclear weapons with normal design. But later on it became possible,
our engineers, the Russians, the Chinese figured out that you can actually maximize the designs for EMP and create much more powerful fields.

These super EMP weapons actually don’t have high yields, they actually have yields less than 10 kilotons. Their yields could be at a range from 1-5 kilotons which is exactly what the most of the early North Korean tests were, by the way.

I should add, those Russian scientists, when they came over and told us about the accidental transfer of super EMP weapons to the North Koreans, they also said, “You know, in a few years,” this was 2004, “in a few years these things are so easy to make, you could expect the North Koreans could test one.” And a few years later, 2006, they did their first test and it was one of these low yield devices, most of the world declared it to be a failure, but we knew about what the Russians had told us. It was the kind of yield, a seismic signal mashed up with what a super should look like. In a sense, it’s almost the lower the yield the better the, because it’s doing a more efficient job of converting the energy of a weapon in the gamma rays, not a big explosion, but in the gamma rays. That’s what makes the EMP.

Q) From the United States manufacturer point of view, through the harmony of that 6 percent increase to the cost, would that only protect us from what you were saying about 3000 volts when you put the super EMP, would that be hardened to that level?

PRY: Well, we should build simulators that go up to 100, 200 kilovolts per meter to test it, to test our hardener to make sure that it works. But it doesn’t cost that much. Once you’ve made that decision that you are going to harden something against EMP, the level of the EMP that you’re hardening against doesn’t make that much difference in terms of the cost. Even though 100 kilovolts/meter is twice as powerful as 50 kilovolts/meter, it doesn’t really cost that much more to harden it against 100 kilovolts/meter, once you’ve made that decision. It’s not the technology that costs so much is really the labor that goes into these things that’s costly.

So if you’re going to do it, you might as well do it against the worst threat that you can think of is going to be out there to be safe. That’s what we thought we were doing during the Cold War, because nobody had conceived of this idea of a super EMP weapon that could do more than 50 kilovolts/meter.

Q) So you said that Obama administration puts in over a million dollars towards hardening. Do you know simply what level? Would it be the 50,000 one? Or higher than that?

PRY: I don’t know, and if I did know I couldn’t tell you. But I was actually invited to participate and work on that project by one of the contractors. Because we don’t have a simulator that goes to 200 kilovolts per meter, even a 100 kilovolts per meter, from an EMP purists point of view, I don’t see you can claim the things has been hardened when you can’t test it.

It’s possible that people say, “Well we don’t have the simulator but I’m going to do calculations and do my best through computer modeling to harden it at this level.” Dr. Graham would not agree that that thing’s hardened if you just based in on calculations and computer modeling. He would want to put it in a simulator in the old fashioned way. He is an old fashioned kind of scientist from the 50’s and back, and that is the way to do it, not to trust computer modeling so much, actually doing an empirical experiment and see if you could try the thing in the simulator. That’s how it’s properly done and that’s been the position of the Commission and all of us. If you haven’t verified the thing is hardened by testing, you cannot claim that it is actually hardened.

MIDDENDORF: Dr. Pry, I thank on behalf of all of us. This has been one of the most enlightening Defense Forum Foundation events we’ve had, and Suzanne set this up and we’re so honored to have you here today,

PRY: Thank you so much for having me here. You were such a great audience.
MIDDENDORF: You are truly, truly a great American. Let’s thank this giant. (Applause)

PRY: Everyone who listens to me over an hour and fifteen minutes is a great American.

MIDDENDORF: You are a great American and I can say it with some authority. I’m wearing my WWII hat which I’m going to have to change the designations from 2 to 3 one of these days. Comes now, just a very short point here, very realistic within the next couple of years, North Korea and Iran can both send up these satellites, two of them they are planning on. And who knows what’s in them, but it could well be nuclear warhead and that would be so devastating, not just the EMP attack but it could take out the city. The question we have to ponder upon in the Pentagon is, once it launches the satellite, if we took it down as an act of war, or can we leave it up there. That would be the question. We are going to have some serious deliberations over the next couple of years but don’t think for a moment that the moral discussions we have here at the Pentagon now, are about killer robots whether it’s proper to let loose these killer robots which has its programs on their own, and without human intervention, they will kill mass of people. We have a moral responsibility to look at this and rule number one is: it is guaranteed that if there’s a nasty weapon out there some son of a bitch will use it without thoughts about morality. And believe me, you young people, I’ll be long dead but you young people are facing a threat, that is exponentially greater than anything we faced in WWII. And I notice that wars have been going on for 6 to 8, 12 years, the next war with AI killer robots, drones, powerful lasers, cyber, EMP, base launched crude missiles, submarine launched missiles, it will be a different war from anything we’ve anticipated today and it’s moving very fast. 10 years ago who ever heard of the iPhone and now these programs are recreating themselves within 2 or 3 years. The next war will be 2 hours and 20 minutes, in my opinion. And I don’t think it’s unrealistic to believe that a seriously well-armed nation, a small nation, can bring a large nation to its knees if it is unprepared. Thank you again, Dr. Pry. (Applause)