is sort of like a lightning strike that is not just isolated to one spot. Different than a lightning strike in terms of the intensities and so forth and the spectrum, but it would be everywhere all at once over a very large area.

I have here in front of me the report, and I will have occasion to refer to that again a little later, the report of the Commission to Assess the Threat to the United States from Electromagnetic Pulse (EMP) Attack. This is the executive summary. The report itself is very thick and there is a big classified addendum to the big report. And I just want to turn to one page here, and this is page 4, and it says: ''What is significant about an EMP attack is that one or a few high-altitude nuclear detonations can produce EMP effects that can potentially disrupt or damage electronic and electrical systems over much of the United States virtually simultaneously at a time determined by an adversary.''

I talked a little bit about what EMP is. It produces a large number of Compton electrons above our atmosphere which are trapped by the magnetic fields around the Earth. They move at the speed of light. The prompt effects are such that if the voltage is high enough, all electronic equipment within line of sight is damaged or destroyed. These are called prompt effects. And, of course, satellites are very soft because it costs about $10,000 a pound to launch a satellite; so they do not launch a lot of hardening on the satellite if they do not need to.

So all of the satellites within line of sight would be taken out by prompt effects. It would not go so high, by the way, as the satellites that are 22,500 miles above the Earth. And it would pump up the Van Allen belts so that satellites that were not in line of sight would die very quickly and one could not reconstitute the satellite network by launching new ones because they also would die quickly.

Let me show a chart here that shows the effects of this bomb exploding over the United States, and this shows a single weapon. This shows a single weapon detonated at the northwest corner of Iowa, and it shows it at about 600 kilometers high, and this would blanket all of the United States. And the concentric circles here, not true circles because there is a little distortion of the electrical fields by the magnetic waves around the Earth, but these represent the intensity of the field that is produced by this. At the center we can see it is 100 percent. But even out at the margins of our country, it is down to 50 percent.

Now, a little later I will show a statement from some Russian generals that were reviewed by the people who put together this report, and they said that the Russians had developed weapons that produced 200 kilovolts per meter. Remember, the effects in Hawaii were judged to be the result of five kilovolts per meter. So this is a force about 200 times higher. The Russian generals said that they believed that to be several times higher than the hardening that we had provided for our military platforms that they could resist EMP.

Others know about EMP. I did not want anybody to believe that we were letting the genie out of the bottle and others did not know about that. I mentioned earlier the statement by Vladimir Lukin, the Russian member of their Duma, and this is the statement that I referred to here, and that was in May 2, 1999: ''Chinese military writings described EMP as the key to victory and described scenarios where EMP is used against U.S. aircraft carriers in the conflict over Taiwan.'' So it is not like our potential enemies do not know that this exists. The Soviets had very wide experience with this, and there is a lot of information in the public domain relative to this.

''A survey of worldwide military and scientific literature sponsored by the commission,'' that is the commission that wrote this report, ''found widespread knowledge about EMP and its potential military utility including in Taiwan, Israel, Egypt, India, Pakistan, Iran, and North Korea.

□ 1645

Terrorist information warfare includes using the technology of directed energy weapons. These are little weapons that produce an EMP-like effect, but over a very much more restricted area, and also electromagnetic pulse produced from nuclear weapons.

By the way, an enemy no more sophisticated than Saddam Hussein would need no more than a tramp steamer, a Scud missile and a crude nuclear weapon like is probably available in North Korea or might be bought or stolen from some Russian source. That would not shut down the whole United States, because the Scud missile could not carry it high enough, but it would certainly shut down the whole Northeast.

By the way, this is not like the Northeast blackout that we had a couple of years ago. This would produce damage that you would not recover from simply by turning a switch. It would probably destroy large transformers. These very large transformers are made to order, and if you need one, they will build you one, not in this country, we do not build the big ones anymore, they will build you one over in Europe or Scandinavia, and it will take maybe a year-and-a-half to 2 years to get it. So it is not like you are going to recover from this tomorrow.

Iran has tested launching of a Scud missile from a surface vessel, a launch mode that could support a national or transnational EMP attack against the United States.

We have a second chart which shows more of the evidence that potential enemies out there know that this is a potential weapon.

''If the world's industrial countries fail to devise effective ways to defend themselves against dangerous electronic assaults, then they will disintegrate within a few years. 150,000 computers belong to the U.S. Army. If the enemy forces succeed in infiltrating the information network of the U.S. Army, then the whole organization would collapse, the American soldiers could not find food to eat, nor would they be able to fire a single shot.''

I kind of think they would be able to find food to eat. This is from an Iranian journal, so you know they know about this and they are thinking about this.

''Terrorist information warfare includes using the technology of directed energy weapons, magnetic pulse.'' I referred to that earlier.

Iran has conducted tests with its Shahab-3 missile that have been described as failures by the Western media because the missiles did not complete their ballistic trajectories, but were deliberately exploded at high altitude. This, of course, would be exactly what you would want to do if you were going to use an EMP weapon.

Today we are very much concerned, Mr. Speaker, about asymmetric weapons. We are a big, powerful country. Nobody can contend with us shoulder-to-shoulder, face-to-face. So all of our potential adversaries are looking for what we refer to as asymmetric weapons. That is a weapon that overcomes our superior capabilities. There is no asymmetric weapon that has anywhere near the potential of EMP.

Iran described these tests as successful. We said they were a failure because they blew up in flight. They described them as successful. Of course, they would be, if Iran's intent was practicing for an EMP attack.

Iran's Shahab-3 is a medium-range mobile missile that could be driven on to a freighter and transported to a point near the United States for an EMP attack. I might state that an early use of EMP is a common occurrence in Russia and Chinese war games.

I just would like to spend a moment or two talking about kind of the history of how we got here and why the big concern about EMP and the risk that it poses to us. I mentioned Operation Starfish in 1962.

Then we really had a scary event which we did not know about for quite some time that happened in 1995 when there was a Norwegian weather rocket that was set off. The Norwegians had told the Russians that they were going to fire this weapon, but that did not get to the proper level. When the weapon was fired, it was interpreted by the Russians as a potential first strike of the United States against them and they had alerted their nuclear missile response. They came very close to launching that, and we did not know about that until some time after.

In 1997 I had a very interesting experience. I am on the Committee on Armed Services. This was during the Clinton administration, and he had set up a Commission on Critical Infrastructure. General Marsh, retired, was