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Mr. Louis W. Bremer (Chairman)
Managing Director, Bain Capital

General James T. Conway, USMC (Ret.)
34th Commandant, United States Marine Corps
Co-Chair, Energy Security Leadership Council, Securing America’s Future Energy

General T. Michael Moseley, USAF (Ret.)
18th Chief of Staff, United States Air Force
Chairman, Gulf Alliance Company

MR. BREMER: It is an honor to chair this morning’s panel on national security and energy. These two concepts are inextricably tied and our success and failures in these areas will have a profound impact on America’s prospects in the 21st century. First, one quick housekeeping item for the record, I’m here on behalf of myself, on my own time and expense and the views that I will share today are expressly mine, they do not represent the views of Bain Capital, my partners, my colleagues or affiliates or our portfolio companies. Before I start telling war stories let me first introduce the first of our two esteemed panelists. Two extraordinary patriots and public servants General James Conway served as the Commandant of the United States Marine Corps as a member of the Joint Chiefs of Staff. General Conway served as a senior military advisor to the President, to the Secretary of Defense and to the National Security Council. As a senior Marine in uniform he was responsible for training and equipping 250,000 Marines and managed a \$40 billion annual budget. Among many notable accomplishments during his forty year career in uniform General Conway has served as the J3 on the joint staff where he oversaw the war efforts in Iraq and Afghanistan and commanded the first Marine division during the invasion of Iraq. Now, in Iraq, many of you remember the Battles of Fallujah, there were two of them. General Jim Conway was front and center on the first battle that was door to door, house to house, block to block some of the worst urban combat our country has seen since World War II. That is real stuff. He attended Southeast Missouri State University, the seminar 21 MIT Fellowship program and the Seminar of International Relations at the Kennedy school of Government at Harvard University. He has been married to his wife Annette for forty-one years. They have three children, two sons who are Majors in the Marine Corps and a daughter who was married, of course, to a Marine Cobra Pilot.

Our second esteemed panelists General Mike Buzz Moseley was the 18th Chief of Staff in the United States Air Force. As a member of the Joint Chiefs of Staff, General Moseley also served as a senior military advisor to the President, to the Secretary of Defense and to the National Security Council. As the Senior Air Force officer he was responsible for over 700,000 Air Force, Air National Guard and reserves personnel. General Moseley had many notable accomplishments during his forty year career in the Air Force. Among them he commanded the 57th wing at Nellis Air Force Base, the 9th at Shaw Air Force Base and the U.S. Central

Command Air Forces in Saudi Arabia and Qatar. General Moseley is a career fighter pilot with over 3,000 flight hours and is a graduate of the Navy's fighter weapons school, also known as Top Gun, and the Air Force fighter weapons school where he also served as an instructor and a squadron commander. He is a recipient of the General H.H. Arnold award, the Air Force association's highest tribute to leadership. He attended Texas A&M University and the National War College. General Moseley is married to his high school sweetheart, Jenny, and they have two children and three wonderful grandchildren.

So we find ourselves at an interesting time in American history following previous conflicts in the modern era starting with the World Wars and including Korea, Vietnam, the Cold War and the Gulf War. American force re-deployments and defense budget reductions meant the end of hostilities and reduction in the strategic threat to the United States. Today we find ourselves fully withdrawn from Iraq. We will substantially be out of Afghanistan by the end of this year. Overseas contingency operations funding have been cut sharply and the base defense budget is roughly flat. Yet unlike our historical precedents we have a persistent and growing threat. The threat emanates from state actors such as Iran and North Korea and to a lesser extent China and even Russia. It emanates from non-state actors such as Al Qaeda and Hamas and Hezbollah in their fragmented decentralize affiliates and it emanates in the cyber realm, the real battlefield of the future, from non-attributable computer terminals all around the world. Despite these threats we have an administration that seems unwilling or unable to differentiate friend from foe. A central tenet of Obama's Middle Eastern policy is to cultivate direct relations with Islamist organizations such as the Muslim brotherhood, the same organization that birthed Al Qaeda and Hamas years ago in Egypt. In so doing, President Obama has isolated our key allies in the region, namely Israel, Saudi Arabia, Egypt, Jordan and the United Arab Emirates. He has aided in the overthrow of Jose Nevarez, a thirty year ally of the United States, a bedrock of stability in the region and a peacekeeper with Israel. Now Egypt, with its dense population and strategic location, is in chaos with no clear resolution in sight. The freedom agenda is a noble aim but in the Middle East, elections don't necessarily mean democracy. President Obama also has initiated a strategy of myopic disengagement. We set an arbitrary timeline for withdrawal from Afghanistan. We failed to obtain a new status of forces agreement with Iraq. Now cities that were once secured with American blood are seeing the flags of Al Qaeda rising high. We failed to openly support the green revolution in Iran during the Arab Spring, perhaps missing our best opportunity to see the theocracy fall from within. And we failed for the first time since 1979 to safeguard the life of a sitting U.S. Ambassador abroad and the three other Americans who came to his aid, including two of my teammates. Of course there are many other national security challenges beyond the Middle East, most notably the rise of China and its push for dominance in the region. China's recent establishment of an air defense zone over international waters is particularly troubling. I don't have all the answers but our two panelists do so I will dispense with the handwringing so that we could hear from them. First up the General Jim Conway. In addition to his many other pursuits he serves on the Leadership Council of securing America's energy future. As such, he is well-positioned to discuss the nexus of energy and national security and the impact of America's emerging energy independence on our strategic imperatives in the Middle East.

GENERAL CONWAY: Thank you ladies and gentlemen. It is great to be sitting next to my good buddy Buzz Moseley again. We served a couple of years on the joint staff together. Lou

allowed Buzz and me as much as 15 minutes this morning and I would like to go faster than that through my comments because I think panel discussions are always best when there is interaction and I think I can speak for Buzz to say that we are interested in what's on your mind. So I'm going to speed fairly rapidly through three points that I would like to leave you with this morning and will look forward to your questions at the end of that.

The first is that oil is indeed the life blood of our economy and as a result of that there is now an inherent national security risk. I'll give you some details. On a daily basis we consume about 20 million barrels of oil. That represents about 20% of what is used globally. Our percentage of the population, by the way, is only about 4% but nevertheless we are arguably the industrialized leaders in the world. The transportation sector makes up about 70% of our energy demand and out of that 93% of the transportation demand is in the form of petroleum fuels. So here is the risk: In 1936, when we were looking at choking off potentially Japan and Germany as a national strategy going into World War II, the United States imported 1% of its petroleum requirement. Fast-forward to 1973, the oil crisis that we had here, the embargo; we were importing about 35%. It got to as high as 60% in 2006. Today, ladies and gentlemen, it is at about 40%. We import about 40% of our daily read annual requirement and in my estimation that creates for us a very fragile scenario and an inherent national security risk. All of it at a time when I believe the world is more dangerous than it was in 1973. In 1973, we were generally bipolar. The Soviet Union and the United States today, and I think Buzz is going to hit on it in some greater level of detail, there are a lot of nefarious characters out there. The region of the world that has more reserves than anyplace else is in turmoil. We are at loggerheads. We have been for thirty years with our greatest antagonist in that part of the world and that is Iran. And today we have a dedicated enemy in Islamic extremists who realize they can't beat us on a battlefield but fully believe that they can bring us to our knees economically through control and manipulation of that oil supply.

Point number two. So we're Americans and we believe that a free market will generally cure everything. Well ladies and gentlemen, oil is an international commodity and it is a global market but it is not a free global market. Seven of the top ten oil companies in the world are state owned. That means there is a cartel out there that dictates what the price of oil is going to be. There is a Prince that is responsible for such things sitting in Riyadh and he has said the price of a barrel of oil will no longer ever go below \$80 and that is not as the law of supply and demand, that is because that's what it takes to satisfy the social programs in Saudi Arabia to keep the Arab Spring from settling there. Now we can criticize that, but on the other hand we ought to be glad he's there because if it were left to the Iranians it would be a great deal more than \$80 a barrel. Unfortunately, again, it is not a free market. Those free market factors like supply and demand, like profit margins, like overhead costs, are simply not in play. And we are being dictated to by this number of countries, some of whom don't share our ideals, many of whom do not share our ideals, again on an annual basis. A couple of facts and figures that you should know, each year our country has a direct transfer of wealth from our pockets to theirs of at least \$380 billion, that is what we're paying for this import that comes to us on an annual basis. Another figure, the Department of Defense, the Navy and arguably the Marine Corps, has held a mission now for decades of securing the sea lanes of commerce. We are making sure that there is that free flow of oil and other goods throughout the globe. That costs our great nation about \$80 billion a year based on what Iran study has said. And I honestly believe there is a national debate coming as to

whether we can continue to afford that price. Is this something that we should continue to do with the increased need for China and India to import oil? Should we continue to safeguard their free flow of commerce? Another figure, it's not just our government that is affected, in 2000 the average American family of four paid just over \$1,200 at the gas pump. In 2012, that figure was just under \$3,000 at the pump. And if you look at what the Bush tax cuts did for the benefit of every single household, it essentially eliminated whatever advantage they may have gotten from the idea of a tax cut. And the evidence will show that with the additional pressures on that global market through India, through China, that it is more likely that the price will continue to go up not that is going to go down. Now you can say, hey, General, I hear what you're saying and in some ways I know you're thinking that our recent successes in mining more oil from our great lands is going to mitigate that right? And that is sort of my third point, can't we produce our way out of this conundrum that we find ourselves in? Unfortunately, I believe that the answer is no, that we cannot do that. And it's back again to this idea of a global market. You hear the term thrown around a lot "energy independence," well somebody probably needs to define that. We can never be choked off like Japan or Germany was choked off in a crisis. But the fact is we are never going to be able to be energy independent regardless of how much oil we produce because, again, it is a global commodity and prices are set on that global market.

A couple of analogies I would like to input on your thought process. When you say oil, think vegetables because there are many kinds of vegetables and there are many types of oil and it's a complex interwoven kind of scenario including refineries and shipments and all those types of things that are at work here. It is a flowing river at a 4 mile an hour current and we are a stream coming into it and we can affect what happens on that river but we are not the driver. And I'm not sure we could ever produce enough oil for us really to be, so if you need examples of that only need to look at Canada and Norway. Canada and Norway both produce more oil on an annual basis than is their national demand. While, ladies and gentlemen, they are paying the same amount of dollars or equivalent currency for a gallon of gas that we are simply because, again, this global scenario we find ourselves immersed in the market. So I would argue that energy independence is probably never going to be achievable but energy security perhaps. So is there a solution? Well I think there is not an easy one but I will offer you some things that SAFE believes we can do to help our scenario in the years to come. First, oil and gas are to be with us for a long time and with that in mind we need to continue to look at efficiencies to maximize that fuel capacity such as it is. Now fuel standards I do believe are good thing. I drive a large tundra, okay, 5.7 L engine. I love my tundra and I'm never going to trade my Tundra for a Prius so I would asterisk that by saying within our lifestyle, we need to look at finding efficiencies rather than have someone dictate to us how we are going to manage those things. Secondly, I believe that we need to open even more drilling. We need to continue to support the public-private ventures that have done such marvelous things over the last decade or so and not for regulation in their path. But we also need to open up more federal lands and we have proposed to the president a thought process that we believe would help in attacking this issue, and frankly, not this last state of the union but the one before the President mentioned it. It's sort of like being hugged by a bear. It is both good and bad when the President endorses something that you're doing. This energy trust fund would take revenues, a portion of the revenues, from new federal lands and put that against research and development for alternative fuels. We don't want to increase the debt or the deficit but if we could take a portion of new revenues and apply it not to companies, we don't want to pick winners and losers, but to the research labs, the

national research labs, and the college university labs, we really think we could speed the development of some of these alternative fuels. Alternative fuels are the third option, and again, Lou was in finance. He will tell you it's tax time, think diversification. I believe as a nation we need to look at diversification with regard to alternative fuels and see what works. Ours is a free market in this country. You as consumers and taxpayers will decide which of these alternative fuels are going to work and which ones won't. Is it natural gas, electricity, hydrogen, biofuels, is it nuclear? There is a whole gamut of opportunities out there but I think as we apply our technological prowess and look at better R&D, that will point us to a path and then you again will decide what gets to market scale.

I will close with a final point. At no time in history has a single nation ever had the national resources to be number one in oil, natural gas, and coal, and yet the United States is on the verge of being that nation. That is an incredible thing. And those national resources need to be properly managed. I have a lot of great friends in the coal industry. I have to think that we should take advantage of all of our national resources and not be a government that crushes one portion of that industry that has helped make our country great now for over a couple of centuries. Thank you very much.

GENERAL MOSELEY: First, let me thank you guys for the invitation for Jim and I to come and share some thoughts with you all this morning. But more than that let me thank you all for what you are doing every day out there in this great country. To highlight the issues that matter and illuminate the path back to family values and the critical values that we all hold dear as Americans. I really say that from the bottom of my heart and I appreciate everything you all are doing. Let me make a couple of admissions upfront. Jim and I go back a long way, we have fought side-by-side in Afghanistan and in Iraq for a few years and worse than that, and more threatening than that, we spent a lot of time in Washington together which is infinitely more risky than being shot at in Iraq or Afghanistan. We bonded early on when we were Colonels and one stars and that friendship has transcended time. Not since Korea has this country gone to war without the Marines and the Air Force somehow involved and somehow supporting each other or been integrated together and it's a real honor to be here this morning with Jim. My two admissions upfront are I drive a Suburban and a three-quarter ton truck and I have no intention of buying a Prius. It's kind of tough to haul a cattle trailer behind a Prius. I don't know a bull with any self-esteem that would get in a cattle trailer hauled behind a Prius. Also, my wife and I, I give all family credit to her, have been married for forty-one years. Our daughter is married to an Air Force Fighter Pilot and our son is an Air Force Fighter Pilot. Our daughter-in-law spent four or five tours in the Air Force to include a combat tour and all three granddaughters were born at Air Force hospitals. So, if I seem prejudiced to big trucks and the American military, I am. Let me attempt in ten minutes to parallel some thoughts that Jim had and let me wrestle this from the perspective of national security challenges because the intersection of energy security and national security I think require no further definition with you guys.

First, we do not now, nor will we in the future, live in a Mister Rogers Neighborhood. It is not going to happen. Regardless of if some folks in Washington want it to be that way, it is not and it will not be. The challenges we have had out there for the nexus of a variety of things that threaten this country and our way of life. Explosive population growth and all that that means and how that directly impacts competition for resources, and I'll get a little more specific about

that, Jim masterfully discussed the notion of energy security, but can you imagine the population of the world by 2025? We will be well in excess of 9 billion people and the demands on energy sources relative to that explosive growth, the spread of violence of all types, uncontained violence of a variety of forms, militant extremism, and how that manifests itself within the region and also between the two major areas of the faith, the Shia and Sunni, transnational global criminal activity, narcoterrorism, human trafficking, we live in a new world of nuclear challenges that not too long ago people probably didn't anticipate. We have the North Koreans, we have the Iranians, on a path to proliferation of nuclear weapons. We have the notion of nuclear arms race in the Middle East because those of you that have any experience in the Middle East will appreciate that our friends in Riyadh will not stand idly by if the Persian Shias go nuclear. And so, what does all that mean to an administration or a future administration's policy decisions relative to the Middle East in Northeast Asia? We also have a growing threatening domain called cyber domain and the abilities through that domain to touch all of us, from medical records to utilities, to school records, to our way of life - it is an encompassing domain that touches everything we do from financial transactions to privacy across the spectrum of human activities and it lives in a set of commons, strategic commons, no different than international airspace or international outer space or international Maritime, and it touches everyone. I had one of our folks in the Fed over lunch one day tell me that over half of all currency and trade on any trading day passes through the city of New York in the cyber domain, whether it is from Shanghai, London, Frankfurt, Tokyo, but half of the currency and trade on any given day through the cyber domain goes through New York. That seems pretty ripe for interdiction or nefarious behavior. So I believe that when you take the sum of the activities across the globe right now, we do not live in the Mister Rogers Neighborhood.

I believe that there is a central prerequisite to global stability, whether it is economic stability or the movement of oil, which is like Jim says, an expugnable resource wherever it comes from and wherever he goes. What are the key elements that define that global stability which then props up a global economy which we are all interdependent upon living in? I believe the first part of that is U.S. presence. And I believe the second part of that is U.S. strength. You can break that down into economic, diplomatic, and military, but I believe that the United States has to be present, it has to be strong. And I think the United States, through its influence or through its persuasion, can move the ball relative to international stability and the ability if necessary to dissuade or deter if required. But to balance that the United States has to be engaged, it has to be able to counterbalance regional powers because there is no other country in the world that has a global mission. It is interesting to guys like Jim and I when we read articles that say the U.S. Defense Department budget is greater than the next the 2013 or 2000 whatever the metric it is for folks that really don't understand because the number two country, whoever that is, still does not have a global mission, it does not have the mission of main staying stability across the entire surface of the earth or above the surface of the earth or in outer space above the atmosphere above the surface of the earth. So whatever it takes to be able to implement the stability that persuasion and dissuasion and perhaps deter us it is an insurance premium that's worth paying. I believe the core challenges that face us over the next few years and we could take a base line, let's just say 2025. We have two more years of this administration and in 2016 we will have a change, which will take us to eight more years of the next administration, which will take us a 2024 and the inauguration of the following administration will be January 2025. So if you think about it, 2025 is not that far away. That is the remainder of this in one more administration. So we are in the

window to be able to do something about this, to fix the mess that we're in now. I believe those core challenges are going to be water, food, and energy security. My time as a director of the East-West Institute, Dr. John Morose and Ross Perot Jr. and I spent a lot of time in the Middle East and in Asia and in Europe listening to people from Ankara to Riyadh from Beijing to Seoul to Tokyo and it all comes down to the insecurity and the notion of what are we going to do with this exploding population and the resources required to sustain it relative to three simple things water, food and energy.

Water is a pretty easy thing for us to understand. It seems to be everywhere we need it but in an interesting twist, in the capital city of Yemen, Sana'a, within the next three to four years will be zero potable water. What happens to a country, even as small as Yemen, when there is zero water? What does that mean to the kingdom of Saudi Arabia, which of course, has had challenges with Yemen. What does that mean to Oman? Two close allies of ours in the region, if a country that harbors Al Qaeda on the Arabian Peninsula and has had frisky behavior runs out of water? So I think water is not an idle notion. We have also spent some time in Tanzania and Kenya and in Libya and a fascinating observation I had, I had a lady in Tanzania tell me that most women that live in the rural areas of Tanzania and I suspect it's not much different than the rest of Africa, spends 90% of her day going and bringing water back to her home. So she has an opportunity of 10% of her waking hours to do anything else other than just securing water for her family.

Food, we see the United Arab Emirates and the Kingdom of Saudi Arabia and others buying large tracts of land in Eastern Africa to be able to secure a food source because water and food interestingly are a link of irrigation and agriculture and poor utilization of the water so that takes you to the notion of where do you secure food? Look at a country like Thailand, going through now some stresses related to the current elections in the government. And remember not too long ago Thailand was the primary exporter of rice in Southeast Asia, no longer. So with a population exploding and uncertainty on water and uncertainty on food, I think we began to paint a picture of what could be a bit challenging. And then we get to energy security and it is not just the United States, it's Asia, Africa, South Asia, Europe, where do the economies of these countries go and how does the economic growth go if the source of sustaining energy is either threatened or uncertain? Like Jim mentioned, close to 90% of the petroleum oil and lubricants for People's Republic of China come through the Malacca Straits out of the Middle East, so if the United States can take a path closer to a notion of energy independence, which I agree with Jim that is a multifaceted challenge, but if you can get closer to that it still doesn't address the notion that the rest of the world is energy interdependent. And for China, who gets about 90% of its POL through the Straits of Malacca, same for Japan, the number two and number three economies of the world are absolutely fragile when it comes to the notion of disruption of that source. So water, food, and energy; I would also not identify a problem without offering a set of solutions with my remaining couple of minutes and so let me reinforce the notion that I do not believe that we live in a Mister Rogers Neighborhood. I believe it is a dangerous neighborhood that we live in and operate in and I think the United States is key, if not the most critical player, on the global stage to maintain a sense of stability for economic growth but also to deny the notions of conflict and to address those challenges and I think the keys to those successes, which I believe are doable before 2025, is to embrace the notion of what America means to itself and what America means to the rest of the world, and I'll even go as far as to use the term of exceptionalism, because I believe that we are. I believe that the United States is special. I do not believe that we

should apologize for being Americans nor do I believe that we should take a backseat to the notion of American leadership on the global stage, but that means the United States is going to have to embrace that itself. I believe that the United States should reengage the world, not withdraw from the world and this notion of leadership from behind. From two military guys that is pretty hard to understand, and it is even harder to issue orders to subordinate units to say, "lead from behind." I don't know what that means. I don't know how to execute that and I don't know how to even articulate that relative to our close friends and allies, the British military, the French military, NATO, Republic of Korea, Japan. I don't know what we say to them or how we write those mission orders down that provides any comfort to them. So I believe that we should reengage, and I say reengage because I think we have withdrawn from a position of leadership and strength, I don't mean we attempt to dominate but I do believe that we should be present and we should be strong. I believe that we should somehow look into the future of a baseline of the Department of Defense funding, I would even go so far as to say that 4% of GDP as a floor is not something outrageous. Jim and I have voiced that several times to a couple of Presidents and I'm not suggesting anything more than that because if you could get 4% as a floor, and then if you have to engage outside that then you can deal with continuing resolutions and you can deal with supplemental funding. But 4% as a given would allow the service chiefs, the Commandant, the Chief Naval Officer, the Chief of Staff of the Army, and the Air Force to plan, to actually lay in programs and plan, which we have not been able to do. I believe that there is a measure here of what's doable and we should focus on modernizing and recapitalizing the U.S. military from Marine Corps to Navy to Army to Air Force, and remember, a lot of folks in this administration and particularly in the media forget that portions of the United States military have been in continual combat for twenty-four years. The United States Air Force deployed in the eastern province of Saudi Arabia in August 1990 and has never come back, with elements of Marine and Navy aviation and southern no-fly zones and northern no-fly zones in Somalia, we have been deployed for twenty-four years. From October 2001 to the present, we have been in combat now in Afghanistan for thirteen years so while most of the American people are comfortable and don't think about this, there are a lot of military families out there and a lot of military commanders out there that understand this very well.

So I believe we should focus on modernization and recapitalization as well as on the U.S. economy, jobs, manufacturing, and unemployment because that is the other baseline of the strength of the United States. Also, I think this administration and its remaining time, or hopefully the next administration, should really focus on restoring faith and trust in the United States in a global setting. Right now, we don't have that. The countries that I visit and work in perhaps don't trust us as much as they did and they perhaps don't have as much faith and I think that comes from a notion of being not willing to address the fact that we are exceptional and that we do live by our word and we do have a bond with our allies. So the focus on our U.S. values and on our key allies is a step for the future. I believe that before 2025, there are ways to address, as Jim said, some of the energy challenges, but I also believe that there are ways to address this vacuum of American leadership on the global stage because I guarantee you we do not live in a Mister Rogers' Neighborhood. And for our children and our grandchildren we are going to have to address this before it gets worse. So I'm not trying to leave on a downward vector as much as I believe there is an answer to this and the answer is just as we described -- let's get ourselves back in a position of being trusted. Let's get ourselves back in a position of people having faith in us. Let's get ourselves back in the position of being able to dissuade or persuade so we can

avoid regional conflicts and let's work with the other powers on the planet to look at addressing these key issues of water, food and energy security because that is where the nexus of conflict will come from. No different than it did in the 1930s or no different than it has throughout history. So let me stop there because I think we have an opportunity here to chat with the folks here. Thank you again for what you guys do out there every day.

ATTENDEE: Thank you all for the tremendous service you have rendered, you and your families, to our country. Obviously, the sentiment is widely shared and I hope the sentiment is also shared and it sort of goes to what you were to saying, General, that so few of us in this country actually have a clue how much of a sacrifice you've made. But in a way, I think perhaps the most important service may be doing what you're doing right now, out of uniform, helping the rest of us to understand the nature of the neighborhood and the challenges we are facing. One that you didn't touch on, and I don't know if you were here when I spoke to the members reports shortly before you arrived, that I would like to ask you to address, because it touches on both national security and energy big time and it makes all the problems that you talked about with food and water and energy and national survival, I think pale by comparison really. And General Moseley, you've had a lot of experience with that I suspect, even the Marines have to some extent, and the Navy certainly. Electromagnetic pulse, a threat that is one of the worst ways in which enemies of this country could take down the electric grid of the nation. Unfortunately, it is not the only one. Just this week we heard about an attack that took place in April that almost blacked out much of northern California for years, which needless to say would have been devastating to the country, not just the area. I'd ask you guys to address both the military vulnerabilities to losing power, notably I think 99% of the bases in this country are tied into the electric grid of the civilian population, and what you've learned in the course of hardening the things that matter, notably the nuclear forces of this country that could be applied to protect the grid if we have the wit to do it before either of the bad guys get to it as they evidently intend on doing, or even solar flares achieve the same effect, so if you would speak to the need for the electric grid for everything we do, your missions as well as our lives and how important learning the lessons and applying them from the military's experience with EMP, which is the public at large. Thank you.

GENERAL CONWAY: Thank you for the question. I will go first because my answer will probably be shorter than Buz's. One, we have fewer installations and secondly there is a difference in the way that we approach security of our energy and our grid if you will. We are expeditionary and that means we go on to a patch of ground that looks like a moonscape and we turn it into home for a week or a month, may be a year, and so we have our own capacity to satisfy our needs. Now, in recent years, we have tried to say how do we take advantage of that location where we are? Is there a lot of sunlight where we can do electrical panels? Is there wind so we can bring in a field type of generator to help us with our capacity? We have lived pretty good lives, I'll tell you in Iraq and Afghanistan with these mega bases and in some ways it doesn't lend itself to our expeditionary nature. Someone asked me once at Newport, what do I fear most about what we are learning and I said, "Cots and Haagen-Dazs are not good for the expeditionary mindset." Our Marines should not get used to living that way. So we do have, again, auxiliary means in the event of a catastrophe such as you described but we don't guard nuclear bases and some of those types of things, like Buzz does, so I will let him continue.

GENERAL MOSELEY: Thank you for bringing that up. This is a big deal. Electromagnetic pulse attacks on the infrastructure or through the cyber domain is a big deal. The Air Force has spent a serious amount of time looking at this and I'll give you some examples. Secretary Mike Wynne was the Secretary of the Air Force when I was the Chief and one of the first things that we did together was change the mission statement of the Air Force to include cyber. We immediately got blowtorched by the civilians in the department and then we ran a set of advertisements about Air Force recruiting and we included cyber and we really got blowtorched and the notion was you guys have got to cut that out because you're scaring people. That was the exact line from the deputy secretary. He said you guys have got to cut this out - you are scaring people. Cyber is something you can't see but you live in. It's here with us now, on all the phones. It's a blessing but with it is vulnerability. East-West Institute has hosted now five international conferences on cyber security in London and in New Delhi, in Dallas and out in the Silicon Valley, and we are looking at a way now with our Russian, Chinese, Indian and some other friends to see if there is not a way to take the Geneva Convention protocol and look at ways to sanctuary activities off within the cyber domain. As military guys we know you don't hit a building that has a Red Cross on and we know you don't hit hospital, schools and cultural facilities. But within the cyber domain, there are no rules. You have rules to operate in international airspace and international waters and outer space but there are no rules in cyberspace. So we are working very hard to be able to establish a notion of sanctuary of activities which would include nuclear power which would include key infrastructure peacetime, because remember, as a United States Air Force Airman, I wouldn't hesitate to tell you that during wartime, key infrastructure is a legitimate target. Having done some of that myself, it is very satisfying because you can tear a lot of stuff up and you can create the desired effect. But in peacetime, it is not. And so this business of this power grid on the West Coast and the vulnerability of power grids in general, this is a serious issue that requires serious thought. Not the notion of cut it out your scaring people. I will give you some examples on the Air Force side. The Air Force fights from expeditionary bases. We set up expeditionary bases and we operate them. In my time commanding Air Forces we built fifty-one airfields. We operate out of eighteen countries and at max capacity we are operating out of thirty-eight airfields. At each one of those, we had the power systems on each one of those was independent of the parent or the host nation power grid with one exception, and that was at the Kingdom of Saudi Arabia. The base itself operated off a big diesel a generator which creates another set of problems which could be addressed. Also, we were linked through standard command control pattern protocols. Encrypted links, when you start talking about electromagnetic pulse in cyber, it's not just the base and the systems that are vulnerable but the links are vulnerable. The commander controlled links themselves are vulnerable. The Air Force spends a lot of time and a lot of money on hardening the aircraft to protect them from electromagnetic pulse but you are always about six months behind because some clever Ph.D. out in Silicon Valley can figure out a way around the hardening system that you've got so you have to continually stay on top of that. I don't believe you can rest when dealing with that particular problem. I will also offer a thought. Secretary Wynne and I were going to use Nellis Air Force Base as the first location because at Nellis, that is also where the Department of Energy and the Air Force and DOD conducted most of the nuclear tests through the 60s, 70s and even the 80s out in area 48 in Nevada. Our proposal was that we would build a small reactor and put it on Nellis and power the base completely independent from the power grid itself which means we would generate more power than required and we would turn the power back onto the grid to benefit the civilian community

around us. But we would be completely independent of the normal grid and that particular activity would be shielded both from electromagnetic pulse and cyber-attacks and we figured if we could demonstrate the proficiency in doing that and the reactor is no different than the reactor on the submarine that we could do that to the main operating base in the United States, the big bases. And in doing that we could provide power back to the community but we would be independent. That was also another episode where our civilian leadership told us you've got to be crazy, we are not to let you put a nuclear reactor on a base and take yourself off the grid. I've got some scar tissue on the notion what I believe is still right is the cyber domain is threatening. Electric magnetic pulse is real. We are far behind where we should be and there are ways to secure the main operating bases, be they the Department of Navy or Army or Air Force, plus secure those sources and be able to provide power the reverse side. One small story, the Kingdom of Saudi Arabia was the only place that we were on the commercial grid. The combined air and space operations center the CAOC was my headquarters at Alkharg in Saudi Arabia for combat in Afghanistan and Iraq and we were on the Saudi grid. One afternoon, in just typical Tom Clancy fashion, things are going well, we are bombing, we are doing what we are supposed to be doing, lots of stuff going on all over from Africa all the way through Iraq. I'm sitting up in the daze, I can't remember if it was before lunch or not but it was midday and within about a second everything in the CAOC goes blank. Poof. All of the screens, all the com, everything, went black. Well, when I took over Central Command Air Forces, I built a second CAOC in Qatar so I had a backup. So we immediately transitioned to the backup command and control center grabbed the A4, the logistics guy, looked at him and asked him to figure out why we just went out. So he goes out. Two Royal Saudi Force Sergeants in front of the CAOC with a backhoe clipped the main cable coming into the command center in an attempt to lay a new waterline and took the main command center for a central command off-line. So it is not just EMP or cyber but two very junior NCOs with a backhoe can cause you some problems. So, great question. I don't know if I've addressed it other than reinforce your notion that this is the big deal and we should fix this.

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