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Moderator: I am Ron Torgerson, and I am moderating this panel today as I have for the last two or three years. So I appreciate all of you coming. It promises to be an interesting 45 minutes.

I've lost one of my panelists, though, Rich Fryer. He should be around here somewhere. But nonetheless, I'd like to introduce Dr. Kevin Geiss on my left. He's a member of the Senior Executive Service and is a Deputy Assistant Secretary of the Air Force for Energy, the Office of the Assistant Secretary of the Air Force for Installations, Environment and Logistics.

Next to him is Mark Duszynski. Mark is from Johnson Controls. He is a Vice President for Strategic Marketing for Federal Systems. Mark is a Program Manager for Johnson Controls and has a very active project at MacDill. So if anybody's from MacDill, you might want to talk to Mark after this.

Just joining us is Colonel (Ret.) Rich Fryer. Rich is from ECC. He's an Energy Program Manager. Rich is the former AFCEA, the Air Force Civil Engineering Support Agency, Commander.

We're pleased to have all three of these gentlemen here today.

Lucian Niemeyer from the SASC, Lieutenant Colonel (Ret.) Air Force, could not join us today because of some of the things that are going on in the Senate right now, so he sends his apologies for not being able to attend.

With that, I'm not going to introduce every speaker. They'll just get up and present as the previous one is finished.

Dr. Geiss?

Dr. Geiss: Good morning. Thanks for coming out this morning. Thanks, Ron, for the invitation. I've done this the last couple of years and I appreciate the opportunity to talk to active duty Air Force, Reserve, Guard, other members of our Air Force, industry partners and those interested here at AFA. This is a great forum to address what I think is a topic that touches every single thing that we do in the Air Force. Also pleased to see so

many blue uniforms in the audience. What we do every day in my office is for you. It's for our Air Force and the missions that we have. Also pleased to see Rusty Finley, former partner in crime, used to be out at AMC, and some of the things that I'll talk about today are directly resulting from the work that he and his staff have done out there at AMC. Also recognize the Civil Air Patrol folks. They're helping out manage the forum today. Thanks for being a part of this.

We in the Air Force don't care about energy for energy's sake. We care about energy because it enables every single mission of the Air Force -- to fly, fight and win in air or space, in cyberspace. The 900 or so mobility flights that we fly every day around the world to carry cargo, ammunition, people, conducting humanitarian assistance operations, disaster relief, all of that is what we are as an Air Force and energy is a part of that. As well as what we do on our installations, providing electricity and power to support satellite tracking stations, intel operations, training, and all other manner of installation activities. Energy is a thread that runs through all of that.

Not just because the budget challenges that we have facing us are there, but because we as an Air Force believe that we need to optimize how we utilize that precious resource which is energy, and how we can become more efficient and effective in that.

A few of the things that I'll talk about today, I think that we have proven as an Air Force that it's a false choice to say that we can either save energy and be more efficient or complete the mission. Because we have shown time and again that we can complete the mission at the same time we're reducing the amount of energy required for that mission, as well as doing it more efficiently and effectively.

We have a \$9 billion energy bill in the Air Force. About 84 percent of that is our aviation operations, jet fuel, and then the remainder is our utilities for our installations and a small part for vehicle fleets. But that \$9 billion bill as our budget keeps shrinking becomes a greater percentage of what we as an Air Force have to spend each year on our energy bill. One of the challenges that we faced not in the POM, but what we faced in year of execution is even though we've been bringing down our consumption consistently, we don't control the price of fuel. As we get to year of execution, I show here '12 and '13, that fuel price has gone up. Where we are this year, it's actually down from that high price, but that's a stress that we feel in year of execution. Because we plan two years prior to what our fuel bill is going to be in that execution year, and that price that we generally use to predict and plan for that fuel price has been going up repeatedly. I think over the last seven years, about six years, it's been up higher than what we planned for. And the stress that that causes the Air Force on the budget side is, fuel

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is a first pay bill. Once we use it, we have to pay for it, we have to buy it. It's not something that you cannot pay for.

So last year the Air Force had to go out and find \$500 million out of very important programs -- GPS-3, F-35, C-17, some of the UAV programs, and pull money out of those programs just to pay the fuel bill.

So it's not just about how do we address the bill and do this with the energy space, it's also about how energy as a cost, as a bill that the Air Force has, results in an effect across the Air Force when we have to go out and find the money to pay that bill. We have to pay that bill and we must pay that bill. This just gives you an idea of what some of that variation is from year to year.

Over the last year we as an Air Force have updated our strategy. When I came on board, it will be three years ago in November, we said wanted to reduce demand, increase supply and change the culture. One of my first questions to the staff was well, if we're reducing demand why do we have to increase supply? But it was in how we were approaching the problem.

The way that we have reshaped it is of course we want to reduce demand, but it's also about improving resiliency. Making sure you have that power and you can restore that power or restore that fuel supply so that we can get the mission done. Having that assured access to energy, whether it's electricity or jet fuel, when and where we need it for our global mission.

Lastly, we initially said we want to change the culture. So my question was, what do we want to change it to? What's the change for? So we decided that the way to approach this is what we're trying to reinforce within the Air Force is an energy aware culture so that we make energy a consideration in all that we do, all of the choices that we have to make. Let's not forget that there's an energy component to it. Whether it's sustainment of a weapon system or it's providing power for our satellite ground stations, whatever the mission is how have we considered energy within the life cycle of that weapon system. So we're working right now with OSD on what are the appropriate KPPs or other requirements as we look at future weapon systems and what's the best way to consider energy?

Energy isn't, again, something that you trade off by itself. Energy in an aircraft relates to how much payload you can carry, it relates to the range that you have on that aircraft, and if you look at the requirements of weapon systems you usually have specific thresholds for those particular areas. So we're not going to trade off energy by itself. We have to understand how it impacts the capabilities of those future weapon systems, yet

at the same time understand what that logistical tail is going to be for the life cycle of that weapon system.

As we look at our installations and address the topic of improving resiliency, we do have some installations that have very good assured access to power. At Robins and Tinker one of the things we have there are natural gas peaker plants. So if the external electric grid goes down we have an opportunity to draw power from those peaker plants. Now we don't have that at every installation, but it's an example of what kind of a relationship we can have with our utilities to assure that we have the power to get the job done on the installation.

A very good example of resiliency is what happened out at Misawa after the tsunami in Japan. Misawa as well as other bases in that area were severely impacted by the power outage and the civil engineer there, Captain Reid Touchberry, immediately brought together a team not only of staff there at the installation but also host nation individuals to focus on what was the mission need for power at that installation. They were able to bring the power back up to support that key mission, but also during that process what they identified were some inefficiencies and some areas where it was less of a priority to restore that power. So they developed a strategy that now affects how that base operates on into the future. That initiating event caused them to relook at okay, what are our key missions? How much power do we need? Where does it need to go? How do we incorporate and enhance the resiliency of that installation and at the same time save about \$1.4 million a year at that installation on into the future from the work that he did.

Captain Touchberry actually received a Federal Energy Management Program award for his activity and I think that's important because it validates that what we're doing in the Air Force, it's not just patting ourselves on the back but it's also getting that external validation from the federal agencies on that.

That 84 percent that I talked about, we as an Air Force have had a goal to reduce our aviation fuel consumption by ten percent compared to 2015. And when you consider the fact that the Air Force does not determine the OpTempo, when the COCOM needs something and the Air Force is expected to provide the capability, the Air Force responds. We don't control how many times we get called upon. We don't control the total amount of cargo that we have to haul each year, so how in the world can we bring down our total consumption? The best way to do that is to get better at every single flight that we make, every sortie making it more energy efficient, and getting more productivity out of every gallon that we use.

This dovetails off the great work that Rusty and the fuel efficiency office did out at Scott but continues with some of the other initiatives that we have. And at the end of the day as we look back in 2012, we not only hit that ten percent, we exceeded it. And in 2012 our reduction compared to 2006 was 12.5 percent.

Some of the metrics that we look at in how we were doing in that context, we were actually hauling 19 percent more cargo and using 13 percent less fuel. So we got more mission done and required less fuel to do it because we figured out ways, whether it's enhanced mission planning, better loading of the cargo in the aircraft, number of strategies throughout that whole logistical train that altogether helped us to get that down.

Our current goal is actually now to focus more on efficiency. So we hit the consumption goal and consumption was a good goal to have out there, but since we don't control the OpTempo we said let's focus now on our efficiencies. So our current goal is to become ten percent more efficient in our aviation operations. And I gave you the 19 percent/13 percent comparison, but another way to look at it is we reduced the cost to move a ton of cargo one mile by 27 percent.

So back to the bill, we don't control the price, but if we can get more out of every gallon that we have to buy, then that's doing the right thing for the Air Force supporting the mission and the right thing for the American people.

On our installations, we're tracking to meet the installation energy intensity metrics that have been levied on us by Congress and others. We have had a healthy investment in our energy focus funds over the last few years. Those funds now are going to be combined with other FSRM and considered with other priorities in the Air Force, but at the end of the day, again, we're meeting the targets and at the same time providing the power that we need to get the job done on the installations.

Alternate fuels. About a year and a half ago I was out at Dover Air Force Base getting a tour of some of the operations there. That's our largest aerial port that has a significant impact on the previous discussion. But as I walked out to the aircraft and we went in to get in the door, walking up the steps, and right on the side of the plane, on every plane, there's a placard that tells you what kind of plane it is. And often the serial number. But this also indicates that on this particular C-17 and throughout the C-17 fleet, it can fly on 12 different types of fuel. I saw that and I said you know, that sums up why we're doing alternate fuels in one picture.

We have a global mission. We don't know necessarily where the next country is that we're going to have to land. Or where the next area of operations will be. The fact that the C-17 fleet

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can fly on 12 different types of fuel gives us global mobility options. This is not about moving from traditional JP8 to an alt fuel JP8, this is if we land somewhere and they have JetA which the commercial spec includes biofuels already, not by our choice or not by our direction but by commercial standard, and that JetA happens to have some biofuel in it, we're going to have to say oh, no. We can't take that JetA. How does that impact our mission?

So having the discussion in the right context is very important. That's the reason we're looking at all fuels.

At this point we've already certified our aircraft to run on synthetic fuels and on hydro-treated renewable jet fuel, and we continue to work with the other services and the Defense Logistics Agency on future options.

The last point I want to make is just reinforcing this element of an energy aware culture. Our theme for energy last year that we worked with Secretary Donley on is, "I am Air Force Energy." Not me, but every Airman is Air Force energy. Every Airman has a role to improve how we use energy to become more efficient, to look at how they use energy within their job to support the Air Force and look for opportunities.

Thank you for your attention and I'll look forward to your questions.

Col. (Ret) Fryer: Good morning. I'm Colonel Rich Fryer. I used to be, as Ron said, heavily involved in the Air Force energy program. As a young officer one of my first assignments was at England Air Force Base, Louisiana which has since disappeared, but I was the Base Energy Officer. From there, my next three assignments was as the Base Energy Officer. I touched on energy throughout my career. When I retired in 2008 I had a passion for energy, got involved in the private sector, and continuing that involvement from energy but back with the Air Force and with the federal government.

Typically what I like to do is just kind of give you some updates on what's kind of, how the industry looks at DoD, how the industry looks at the Air Force, things that are going to go on. That's what I'm going to do. I'm just going to hit some of those highlights. But I've got to start with a cartoon.

Do you get it? All right.

Dr. Geiss has hit upon these. There are mandates and these mandates are not being relaxed. They're both for energy efficiency, renewable energies. The services have taken on some especially aggressive goals with regards to renewable energy. And those goals take a lot of money. You understand, we all

understand that the times we live in, this is not a great time for the Air Force, for the services, the federal government to make these investments. So the private sector's going to come in and help with these investments.

OPM. Everybody knows what OPM is right? The definition follow. Other people's money. So it's not federal money. Really what this means is public/private partnerships where the federal government has a need and they don't have the capital, the money needed to make capital improvements, but they have a utility stream that they can pay for those improvements when they made the improvements and saved on their utility bills, so they have a utility stream. These things come in all kinds of forms.

PPA stands for Power Purchase Agreements whereby an entity, a federal agency, provides space, whether it's actually ground or rooftop space or space for any kind of energy system, and most of my focus is on renewable energy, to allow a developer to come on in, place a system in place, and then sell energy directly to a client as in the federal government for a period of time. So that's kind of the PPA arrangement.

EUL is an Enhanced Use Lease where the government has some excess land, makes it available, gets kind of a rent or payment in kind for it, and then the developer can do kind of whatever, build an energy plant, sell it to a local utility.

ESPCs, Energy Savings Performance Contracts.

UESPs, Utility Energy Savings Performance Contracts.

Those are partnerships. We come in and do energy efficiency kind of stuff to existing facilities.

The last little bullet is kind of the new little wrinkle there. So what we found, what I specifically experienced in these days of sequestration where I've been as an industry partner doing this kind of work with federal government partners, is so while we have the money for that capital improvement, that funding, the services, the government also has to have a certain amount of capital money to manage their side of this thing. Whether it's contract technical help so they can evaluate proposals, whether it's the civ pay so the people who have actually got to be there aren't off on furlough that you're supposed to be working with. So there's a certain amount of government funding that's still required that can execute these kinds of public/private partnerships.

That's kind of a little surprise and kind of an eye opener for a number of us in industry, thinking that this was not going to be that much of an issue.

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Industry is very interested in public/private partnerships. Lots of firms pursuing them.

For example, this is my personal example. At Fort Detrick, the Army came out with this 15 megawatt solar farm they want to build. Their land. They're going to plug it into their electrical system and they're going to buy the power for 15 or 20 years. Two hundred people from industry showed up for the site walk. The kicker is, though, after the second day, the kicker is Fort Detrick and the Army will only pay their going rate for brown power. They won't pay any more than that for green power than their going rate for brown power. Which is 7.5 cents a kilowatt hour which makes it very difficult to do a project. To finance the project, to pull it off. Especially when they also want you to pay for the land.

This is, I just share this with you because this has got a huge amount of industry attention, so the Army strategy's come up with this basic MATOC, Multiple Award Task Order Contract, to bring in lots of qualified firms. Kind of pre-qualify them and allow them to go out to various kinds of technologies. Geothermal, solar, wind, and biomass. They just started the awards, and of course once they just start the awards the protests have just started as well. But 114 firms, teams, developers proposed on the solar portion of it alone.

The point of that is industry has got qual, at least they think they have qual, and high levels of interest and people are willing to come and invest in the federal government, and specifically the services.

Financial landscape. Some things are changing a little bit. Some of the incentives that are out there are sunseting. The solar incentive sunsets in December of '16. That's a 30 percent kind of shot in the arm to any developer who's doing a project. So even if it's on federal land, that 30 percent incentive will come to that developer in the form of a tax break down the road.

But those are ending. Those have big financial impacts on projects. Same thing with geothermal and biomass. State incentives go up, down and sideways, so all these things kind of have some financial issues on that, and the economy's picking up.

So previously, last year when I briefed at this thing, there are a lot of folks interested in putting money into the federal government to kind of finance PPAs.

Still a lot of people, but the landscape's changing because there are other places they can place their money. There you go, increased competition for investment dollars.

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This is something that's slowly but surely, it still hangs out there. I'm in the midst of one effort with the Navy right now. There are still some issues about the FAR. The FAR is not exactly defined in these kinds of things, these kinds of complex transactions. So we'll still work through that. Anyway, some changes I think are in store for the FAR and we're able to work through that.

This is kind of still hanging out there. The Japanese were very interested in developments in Guam and Hawaii but that all changed with Fukushima.

Then kind of what I mentioned earlier when I talked about Fort Detrick, this is one of the things that really hangs over us in the industry sector, being able to support the federal government, is that basically nobody wants to pay more than brown power. And brown power is fine if you're in Hawaii where they're paying 23 cents a kilowatt hour. You can produce projects at that rate. But in Fort Detrick, Maryland where they're paying 7.5 cents a kilowatt hour, it's hard to bring in a project.

Anyway, industry is still ready to support the services, the Air Force, anybody who has come up with these projects. There are some kinds of things happening, the landscape, the financial and the incentive landscape. But interest is exceptionally high.

That is my presentation.

Mr. Duszynski: Good morning everyone, it's a real pleasure being here, to be in such esteemed company as these gentlemen here. I'm Mark Duszynski with Johnson Controls. I've been active in the energy industry for pretty much my entire career, the last few years as a program manager on some of our Air Force contracts.

I'd like to acknowledge one of my colleagues who is here, Retired Lieutenant Colonel Ephraim Rivers, currently a reservist in the Missouri Air Reserve. Thank you, Ephraim, for joining us today also.

Dr. Geiss spoke about optimization and how important that is as it relates to energy. I'm going to speak for a few minutes on facility energy optimization specifically. We're going to drill down a little bit. I'd like to talk about the use of technology specifically to optimize facility energy. Share with you a few basic principles, some best practices, some possible benefits. This is a topic that I think is very much overlooked but it's one that can produce some tremendous financial benefits and energy security benefits.

As an industry category we generally refer to these technologies as energy monitoring and utility control systems. Dr. Geiss

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referenced the Air Force Energy Strategic Plan from March of this year. As you know, it replaced the previous energy plan from 2010. This strategic plan explicitly addresses the increased use of technology in optimizing energy use.

Let me just take a minute and quote from the Energy Strategic Plan, Priority 2, which is reducing demand because the technology I'm referring to attacks mostly this particular priority. It said, "The reduced demand goals and objectives address demand side energy management issues and support various activities to build and sustain the capabilities needed to decrease the amount of energy required to operate Air Force systems and conduct operations. So this is the demand side.

Part of this is ensuring that the Air Force has the ability to collect and analyze energy data to manage consumption effectively by using advanced tools and management systems such as smart meters.

So the Strategic Energy Plan sets up a perfect framework, creates exceptional reason to get excited about energy monitoring and utility control systems, because through this single initiative my belief, that is modernizing these technologies, using these technologies, we probably have the potential to single-handedly meet most of these energy objectives as it relates to facility energy.

Here's the problem statement.

Most DoD installations have outdated, incomplete, incompatible, unused, whatever terms you want to use, energy management systems. It's just a fact of life and the Air Force is no exception.

I don't know how it came to pass, but unlike the private sector where you could go to practically any college or university campus and find a modern energy management control system, for some reason in the DoD, it's probably a historical anomaly, your systems are outdated, they're incomplete, and as a result you're handicapped. You don't have the tools to manage the facility energy like you could to optimize that use.

I want to talk about what some of the solutions are to that problem and how we can move forward.

Here's a vision for tomorrow. IT's really being achieved in many places today, but just simply not enough in the DoD. It's modernizing these systems to create an installation-wide technology. To control the energy-consuming assets within the facilities or the installation.

The interesting thing is, and Colonel Fryer talked about this when he talked about some of the financed contracts, most of these improvements can be self-funding because the energy they save more than, generally more than pays for the cost of the modernization.

If you look at this diagram you'll see, I'll point out a couple of things. You can see that generally the system is installation wide. That's how you want to command and control your facility operations. That's how you optimize your energy.

Ideally, you're going to want to have a base operations command center where the engineers and the technicians from the base can more effectively operate the installation. And you of course want to utilize the data you have from your meters. You want to take advantage of integration of renewable systems like wind and solar. So this is kind of where I believe we need to go.

I'm going to show you a couple of screen shots here from one of these systems and you'll get a sense of the command and control aspects of it. This is an operator station of a sector of a particular installation in the desert, as you can probably tell, where you can drill down and see various buildings in that sector.

Here's a screen shot of an air handling system control. It's a graphical control screen. A lot of advanced visual management is built into these systems. And just like you'd see in some of the mission control systems, allows for better monitoring and control of these energy consuming assets.

A final example here is a screenshot of a chiller plant control. This is a complex graphic. It shows all the different elements of the main cooling plant for an installation. The symbols, colors and texts are used by an engineer to better inspect the conditions of the entire system and to detect sub-optimal energy usage patterns.

Why are these beneficial? Generally it's because they control the demand of large loads. They use the energy management systems, modernized ones, to optimize those operations.

This is how you save money. So it's the HVAC systems, it's the central plant, it's distributed active systems, motors, fans, pumps, all of the kind of dynamic aspects of the mechanical and industrial control systems that are on an installation. So it's through demand control primarily that the money is saved.

Specifically, the financial benefits of energy monitoring, utility control. Modernized systems now, the type of systems that just about every medical center, every corporate campus has in place and is using actively, but unfortunately as I said at

the beginning, DoD has not had the luxury of doing this, although it's really not a luxury. But the energy efficiency savings attributable just to this one measure is well documented at about 15 percent or more per year. And when it's combined with other applications such as a micro grid or some other more passive connectivity aspects, you can get up to an additional 10 percent of savings.

So modernizing these old or incomplete energy systems across the entire DoD portfolio I believe, industry believes, and Congress believes and I'll show you some evidence of that here shortly, should really be a top priority for DoD over the next decade, because the payoffs are significant. As energy gets more expensive or budgets get cut, the cost of energy can't be controlled, as Dr. Geiss said, this is how you attack the demand side and reduce your usage. So I believe it should be a priority.

I want to give you some examples of an integrated energy management system. Typically what it does is it optimally matches supply and demand in real time, so you're actually attacking the consumption as it's occurring. It allows more accurate load programming. Control measures become less intrusive. They're really not evident to the occupants of a building. They don't impact the mission adversely. That's kind of really the neat thing about using this technology.

I use kind of an analogy with driving a car when you're doing a lot of interstate driving. Compare not having cruise control to having cruise control. When you have cruise control you're using technology. And the facility energy monitoring and control, is the cruise control. You're going to use less energy, the ride is going to be smoother, and it's really undetectable.

Those are some of the main aspects.

AS a real life example here, I intentionally didn't select an Air Force base just because I didn't want to show preference or bias, so I picked a Marine Corps base. This is 29 Palms in California. The Marine Corps Air-Ground Combat Center. I believe it's a great proof source of what a modernized energy monitoring and utility control system can provide.

Take a look at this energy intensity graph and what the base has been able to do. The red line depicts their actual usage and how it's been reduced. The blue line is the goal line. They've done this through better application of technology on the base. They've had a very aggressive energy team there, a lot of veterans who have been there a long time and they've been successful in getting the funding to make this happen. The results are impressive. They've already exceeded their energy reduction goals through 2014.

Here's some more information on it. \$138 million projected accumulated energy savings. This is all facility energy that's being saved. So while we know it's small compared to jet fuel at only 16 percent of the Air Force budget, the numbers are still very very large, even at a single installation. They're big numbers.

And many times you can get guarantees for the savings when you purchase through a UESC or ESPC type contract. Many of these things, in this particular project, were projected in that fashion, through a finance contract.

In closing I'd just like to say thank you for your attention to this, what I believe is an extremely important topic. Congress believed it was important back in 2010. They included language in the NDAA that prescribed to OSD that it takes a look at energy management control systems, put together an implementation plan, look at a better unified approach across the services. There are some working groups looking at this but it's an area that we all need to stay focused on because the dollar payoffs are pretty significant. And unfortunately, as I've said a couple of times, DoD is really -- You don't have the tools that you see in private industry, and that's not right.

Thank you for your attention. We'll take questions now, I believe.

Moderator: I have questions from the audience, and we have about 10 minutes before this is done.

Dr. Geiss, is the Air Force monitoring or analyzing the ESTCP project for intelligent micro-grid at Fort Bliss? And is the Air Force considering a similar application?

Dr. Geiss: Each of the services share what they're doing, in particularly on the micro-grid projects. I think there are over 60 micro-grid projects going on across the military installations. I think what we're looking for, not in particular just at Fort Bliss, but we're looking for what those best practices are related to those micro-grid projects and identifying how they would apply on an Air Force installation.

One of the challenges we have as we look across the installation, it's been said when you see one installation you've seen one installation. So power requirements and how it's managed at a large depot like Hill or Tinker, at a testing facility like Arnold, at an active duty Combat Air Forces base like Langley, the challenges are going to vary. So I think the key is whatever the solutions are that we might pursue, we have to focus on what the mission is and what the right technology and approach is.

Installations also have different power production capabilities. So at locations like Robins and Tinker where you have production on site, versus other areas where all you have are your connections to the commercial grid, or someplace like Thule, Greenland which burns seven million gallons of diesel fuel every year because there is no grid to connect to. So coming up I think with the right solutions is the best approach.

Moderator: Mark Duszynski do your proposed EMCS systems have inherent cyber defense/resiliency built in? If not, what is the cost to incorporate them and how will this impact the bottom line?

Mr. Duszynski: That's a good question. Thank you.

This is a fast emerging area and not just related to energy management control systems, but really all active industrial control systems which is a general category that also includes SCADA systems, water treatment systems, airfield lighting systems, and so forth.

With the knowledge now of the increase in cyber terrorism as it relates to these control systems, and in the last two years the number of attacks into industrial control systems has increased 300 percent. So it's not just property theft of data, but it's actually breaking into the control systems and disrupting the control processes. For the systems I talked about and all these other systems.

So industry has begun to respond to this need. I know Johnson Controls does have an automation engine which is the primary component at the building level that we have hardened and are installing as part of a pilot project for the Navy. Other manufacturers are also responding to this. I know that the services are coming up and developing new requirements in this area.

I guess the short answer is yes, we have solutions, but there's a lot more work to be done because this is an ever-increasing threat area for the DoD.

Moderator: For Dr. Geiss, the Navy is consolidating data centers; the Army has a \$7 billion MATOC contract in vehicle. Does the Air Force have any similar initiatives?

Dr. Geiss: As far as the data center consolidation, I think one of the largest ESPC projects we have on the books will be a data center consolidation at Edwards Air Force Base. So be looking for that notice of opportunity to come out probably in '14.

The MATOC that the Army has developed through the Corps of Engineers is actually a tool that all the services could use.

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Our perspective is it's one contracting option. Certainly there is value there in the fact that they've pre-qualified the companies to work on those projects. But the Army has said that those are available to all of the services.

Moderator: Mark, you might add to that. You hold one of those contracts I think, don't you?

Mr. Duszynski: Yes, we were recently awarded, along with a lot of other companies, one of the contracts in the solar area.

Those particular contracts, those MATOC contracts are GWACs, government-wide, global world-wide contracts that are available to any agency that would engage with the Huntsville Corps Center of Expertise in the Army. And that's what they're intended to do. Very well funded and lots of interest, as Rich pointed out earlier.

Moderator: Dr. Geiss -- you're popular. I applaud these initiatives. Is there a central Air Force clearinghouse to submit ideas, proposals, technologies, to help achieve Air Force energy objectives?

Dr. Geiss: I would say that the clearinghouse is not the Secretary. That's actually a challenge I had when I was in the Army Energy Office. We'd get these ideas that would all go to the Secretariat. They all come to us anyway.

I think the point is if it's an installation-related topic, I would suggest that you speak with the folks at the Air Force Civil Engineer Center down at Tindal Air Force base, where our energy guys are. It's headquartered out of San Antonio, but the Air Force has consolidated its field operating agencies in the civil engineering field, so I recommend that you go to those folks.

We also have some key POCs in the Air Force Research Lab if it's more of a weapon systems technology idea that we could get you in contact there. Contacting my office is fine. Usually if it's a technical question I've got great folks like Christa and Doug here, but we'll probably send you out to the field folks that have a better feel for where your technology would fit into an Air Force priority.

Moderator: One more. It's in green handwriting and I'm having a hard time reading it, but if the author of this wants to correct me, please do.

Dr. Geiss, how are energy initiatives, especially those that might not provide savings inside the FYDP, performing in the POM process, -- faring in the POM process during these austere times. Sorry.

Dr. Geiss: As we look at shrinking budgets, a lot of the pressure is on return on investment. Where we can show a return on investment, in particular if it's within that POM cycle, it has a chance. If it's outside the POM cycle, it's more challenging. I think we see that across the board. Not just for installation issues, but also for weapon systems. If you're talking about a major upgrade to an aircraft, the payback may be over 10-15-20 years.

Yet the other thing that we see is, thinking of one project that I have in my mind, of the total savings which could be upwards of a billion dollars, only a few hundred million was actually for energy. Some of the greater savings that we can accrue is actually on the maintenance and sustainment of that weapon system.

So from our perspective one of the ways that we've chosen to come at this is to make sure that we're partnering with those folks that are responsible for the rest of that sustainment tail, and make sure that those are the issues that are put on the table to get the attention of the corporate structure in the Air Force.

I would also say, though, that across the board investment accounts are getting hit significantly.

So Rusty, it's a battle we continue to wage and we won't let up because it's doing the right thing for the Air Force. We've also seen that OSD has seen some value in pursuing some of these long-term ideas. And as we look at sequestration, that's a ten year window. So it's not just the five year POM. So we're working heavily with the programmers in the Air Force to help shape that perspective as they try and solve the equation within that five years. Don't forget that there's homework that's going to be due next year on that year that's outside of that FYDP and five years more for those years that are part of sequestration that are not within that POM.

But I would say that's one of the biggest issues that we continue to work in our office, is how do we ensure that the priorities that relate to energy are sufficiently accounted for and considered as we make those decisions in the Air Force budget.

Moderator: Thanks, Dr. Geiss. We have time for a very short one question if anybody else has any?

So Colonel Fryer skates, it looks like, and doesn't get any questions. Good on you, Rich.

Please join me in giving my three colleagues a warm round of applause.

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