Center for Strategic and International Studies

TRANSCRIPT

Event

"Launch: Army Climate Implementation Plan"

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FEATURING

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Morgan Higman: Good morning and welcome to CSIS. My name is Morgan Higman, and I'm a fellow in the Energy Security and Climate Change Program.

Yesterday, the Army released the implementation plan for its climate strategy. Today, we are excited to host the launch event for that plan. That plan sort of targets two high-level goals. One is a 50 percent emissions reduction by 2030 from a 2005 baseline. Another is a net-zero emissions target by 2050. The implementation plan talks about near-term objectives, tasks, metrics and resources to support those long-term goals.

I'm joined today by two esteemed guests. Paul Farnan is the – I have to cheat here, sorry – principal deputy assistant secretary of army installations, energy and environment. And Sharon Burke is a former assistant secretary of defense operational energy plans and programming. Thank you so much for joining us today.

I would like to start with sort of a high-level view of the Army climate strategy and the implementation plan, the goals that are set forth, and how these two different resources work together to support the Army's goals. Paul, could you tell us about that?

Paul W. Farnan: Sure. I want to start with why we did this. We started with the climate strategy a year ago really because climate is not some futuristic threat that's kind out there in the universe somewhere. Climate change is actually affecting the Army today, right now. Whether it's the storms in the Southeast, stronger, more frequent hurricanes that are just continuing to batter our installations and threaten our soldiers and our families; the polar ice caps melting – there's now a call for a permanent force up in Alaska, so we're expanding our presence in Alaska; or the wildfires out West – thousands of National Guardsmen now spend their summers fighting wildland fires; so we are dealing with the effects of climate change right now.

But I also just want to stop and also say while the climate strategy is very much about reducing our emissions and dealing with the challenges of climate change, everything within the climate strategy will actually enhance the capabilities of the Army. It will increase the resilience and modernization of our installations, which is very important because in these days we're actually in a contested homeland. You know, in our history the war has always started on the European battlefield or in the far east, far from our shores. So we simply just – you know, we had our troops, we went them to the ship, we sent them overseas, and that's where the war started.

But not anymore. We've never fought a war in a contested homeland. But we believe we will never again fight a war that's not in a contested homeland. The battle starts here. There's going to be something that is going to impede our ability to get our forces to the battlefield, be it a natural

disaster or a cyberattack that takes the grid down. Our installations still have to be able to operate. So everything in the climate strategy, while it is, in fact, addressing greenhouse gas emissions, it is also making our installations more resilient and more capable of actually projecting our forces in a time of need.

It also increases the capabilities of the actual warfighting force. By reducing the fuel that we need on the battlefield we're increasing the range of our vehicles, we're reducing the amount of forces we need to protect our contested logistics lines, and we're protecting the safety of our soldiers.

Ms. Higman: Very good. And so talk to us a little bit about the – some sort of substantive differences between the climate strategy and this implementation plan.

Mr. Farnan: So really, the strategy and implementation plan, they're just two chapters of the same book, if you will. The strategy sets out the "what," the big picture, what do we want to accomplish. The implementation plan is the "how." How are we actually going to do it? So while the objective is set out in the strategy, the implementation plan just gives us timelines, when we're going to accomplish it. It actually assigns responsibility. Who is responsible to oversee specific objectives to make sure it gets done?

And what I will also say is the implementation plan is a short-term thing. Many of the objectives in the strategy reach out into the 2030s and '40s, and some even all the way out to 2050, because of the long-term goals that we have to accomplish. But what we do know is, you know, a lot of long-term goals, we don't know how we're going to accomplish them yet. The technology's going to continue to evolve.

So what we did with the implementation plan, we purposely set it out from now until 2027, knowing that in 2027, technology, we're going to be in a totally different world; there's going to be capabilities there that we can't even imagine right now, and that's going to help us accomplish that. So what we're doing with this implementation plan is, one, we're setting the foundation for the long-term goals. What do we need to do now to make sure that the Army and DOD is moving in the right direction to accomplish these long-term goals? But at the same time it's also actually moving us toward those goals, so there's some very real accomplishments that are going to be set forward over the next five years.

Ms. Higman: Very good. I should note for our virtual audience, the implementation plan has been linked on the CSIS webpage.

Sharon, the beginning of this implementation plan talks a lot about how the Army Climate Strategy builds on sort of climate- and energy-related initiatives that have already been undergone and sort of in the works

already, and I wondered if you could give us sort of a longer view of the extent to which you think this is sort of a natural continuation of work that's been done or a more transformative sort of piece of action.

Sharon Burke: It's a great implementation plan. Well, first of all, that is already discontinuous because, you know, this town you could build a fortress out of all of the reports that have made statements but have never actually been implemented. So having an implementation plan – and by the way, I think it's Annex B was my favorite part because that actually slots the money, I think, against the – so that alone is discontinuous – (laughs) – so I just want to call that out right away. But as for the history, it's a really interesting question because, you know, there's also some really interesting continuity here in that when we talk about war and environmental quality, they don't always go together. War's not about the environment; it's a consumptive and destructive activity. It consumes natural resources and it destroys natural resources, and that's been true as long as human beings have been throwing rocks at each other.

So when you talk about well, what does it mean for a military to be considering the environment, it's an interesting question, and I would say, a really interesting point in history here is starting around 1992 with the end of the Cold War and you have the Department of Defense having to reckon with a really difficult legacy, environmental legacy, and there are still – I looked it up this morning: There are still something like 600 military Superfund sites out there and a lot of them are Cold War legacy sites. So, you know, we learned the hard way and we had Sherri Goodman as a Clinton-era official in there figuring out that not just how do you clean up the aftermath of a war, but how do you fight in a way that's not so destructive to your own country or, you know, to countries that are some days going to become your partners and your allies? And so that started at that point and some of what we're seeing now is a legacy of that.

But this is also different in that what Paul Farnan here is talking about, what the Army is talking about is not just how you fight war and also – excuse me – not just how you fight war and the large enterprise you have that fights a war, but also the conditions around you that set the battlespace and that determine what kind of war you fight, and it's all of that. So it's what legacy do you leave, but it's also – certainly in the United States, our military, our Department of Defense is a, you know, trillion-dollar, 2-million-person enterprise that's in every state in the country and around the world. How they choose to build that capability is going to have implications, but then also the big change here is that climate change is not just, OK, something nice to do or something that we have to incorporate into that large enterprise that we have, it's also something that's shaping the strategic environment, the threat environment, how we operate, where we operate, and this

strategy is taking all of that into account and saying, what does it mean for the Army?

And then the most interesting part of this history is that during the wars in Iraq and Afghanistan, energy on the battlefield became a liability because it was putting more risk in for our forces, both in terms of they needed to have continuity of operations but they also needed to protect these large fuel convoys because we are a very fuel-intensive military. And Congress was very active on that and asked the department to change that footprint, both to make a more effective military to minimize the risk to fielded forces and to lower the costs at the time. That was not the number one reason, it never is on the battlefield, but it was part of it. And so there was some thinking there, too, about the battlefield is changing. So some of this is sort of a natural evolution to the point we're at now, where energy on the battlefield is also changing, as far as the contested logistics that Paul mentioned and all of that.

So those efforts to innovate our way out of that, both in the way we fight and in the technology we use to fight, is part of the legacy we have here as well, and that was Obama era, continued under the Bush – or under the Trump administration, although at a lower ebb. Those technologies and innovations didn't get as much funding, but they did continue.

So, there was plenty of statutory and program-level activity to build on, but this is a big expansion of all of that.

Ms. Higman Very good. I –

Mr. Farnan: I just want to piggyback off that.

Ms. Higman: Oh yeah go head. Yeah, sure.

Mr. Farnan: So I'm going to jump ahead a little bit and through our program a little out of whack, but I like to do that.

Just the segway that Sharon provided with the operational energy side, you know, as you know, we've got three LOEs, and LOE 2 is the operational energy side.

Ms. Higman: LOEs are Lines of Effort.

Mr. Farnan: I apologize.

Ms. Higman: That's OK.

Mr. Farnan: Counting on acronyms. (Laughter.) But anyway, you know, our first Line of Effort was in the insulations. That's where the Army burns most of our fuel, and that's where a lot of greenhouse gases are going to come from.

The second objective is the operational energy side, and that is – for the Army, we're not the big fuel burners in the Pentagon. That's the Air Force and the Navy. The big planes and the big ships – that's where a lot of gas is going to get burned. We can still make a difference, and we will.

But really, what this one is about – and so, while it's not as important for strict emissions, it's most important for the soldiers, and so, it's most important to us – because this has a direct impact on the soldiers, on their ability on the battlefield, and on their safety.

You know, Sharon talked about the fuel lines in Iraq and Afghanistan. All of those fuel lines needed to be guarded by combat forces. We took casualties, and we pulled combat forces away from the flight guarding logistics lines. If we can reduce the amount of fuel our vehicles use by 30, 40, 50 percent, you know, that's half of the fuel convoys we now have to protect. So, that's half the casualties we're going to risk. That's half the amount of combat forces we're pulling away from the fight.

And whether or not it's trucks going through a steep terrain or whether it's ships trying to cross the Pacific, those are long fuel lines that all have to be guarded. So, by doing what we're doing – by decreasing the fuel, by hybridizing our tactical vehicles and cutting their fuel use, we're actually increasing the capabilities of our soldiers and providing them better protection.

Ms. Higman: Very good. I appreciate all that context and background.

I want to get into the substance of this plan. So, as you said, there are three lines of effort – or LOEs – both in the climate strategy and in the implementation plan. I will echo your sentiments, Sharon, that it is really just refreshing to see a plan that so clearly lays out concrete tasks, metrics to measure the tasks, assigns responsibility for them, details the allocated resources to support them.

And so, I appreciate all of that, and so, in this plan we see sort of line items for each of these three LOEs, and I would like to go through them one by one.

The first is the insulations, and you talked about that operational energy. The installations part of the implementation plan talks a lot about microgrids and also about reducing the carbon emissions associated with power consumption.

I wanted you to talk a little bit more about those objectives and maybe, to the extent that you can, are there particular installations that have been prioritized for these kinds of investments? Or what can we expect in the next couple years?

Mr. Farnan: Sure. First, I have to say, as I'm sitting here taking all the accolades for this strategy, I've got to thank the entire staff. We have a huge staff behind this that did a lot of work over the course of the last year, and really reached that – this is a broad Army strategy. We touched every aspect of the Army around the world. So, it's a lot of people that went into this.

And mostly, Secretary Wormuth, Secretary of the Army. It was her guidance and backing that allowed this to happen, and every point that you just made about the – you know, the timelines, the dates, specific goals, that was all her, you know. She said to me on day one, I don't want just some pie-in-the-sky strategy. I want to know what we're going to do, when we're going to do it, and how we're going to do it. So, that allowed us to actually proceed.

As far as the insulations themselves, yeah, so, what we're trying to do is build modern resilient installations. Any energy source that comes from outside of our fence lines is vulnerable. So, whether that's, you know, a natural gas generator on the insulation, there still has to be a pipeline coming from off base. That pipeline can be – is vulnerable to physical attack. And also, if the grid goes down, the gas is moved through pipelines through electric motors. So the gas is not going to be moving if the grid goes down. So that's vulnerable.

Diesel generators, which the military traditionally always uses as a backup source of power, you know, that's great for the seven days that we have the diesel fuel on the base, but then what happens on day eight? Anyone that's lived through a hurricane and the aftereffects, you know that there's a week where you can't get any fuel because there's no electricity to make the pumps operate. So again, even the diesel generators, it's not a reliable source of backup power for the long term. And we have to plan for a long-term power outage, you know, weeks or maybe even months.

So really what we need is we need self-contained generation. It just so happens that the best self-contained generation is also carbon-free generation. So what we're doing is we have a goal, every one of our installations will have a microgrid installed by 2035. And that will allow the connection of onsite generation. It will allow us also to island the base and island our mission critical systems so that we can focus – so that we can still operate if the grid does go down. We're really focused on the generation aspect. We're putting a lot of solar everywhere. We're looking at geothermal. We're looking at all options across the board.

And it's not just – you know, we mentioned the funding. And the funding obviously is important. But we're not just using appropriated tax dollars. We're actually finding partnerships with third-party finances. We're working with the utilities and private companies. A lot of the generation is actually not – we don't own it and we don't operate it. We work with a partner. We've got a lot of land, obviously. We'll lease land to a local utility. They'll put up a solar array. They will own and operate that. Day to day operations, that energy, that carbon-free energy, it feeds the grid. So the local community is getting carbon-free electricity that the Army is very much supporting.

But we have an agreement with the utility that in a contingency, in a national emergency, if the grid does go down, we have first right of refusal of that power. So that with the microgrids that we're installing, hooked up to the solar energy, we're able to route that to our mission critical systems, so that if the grid goes down and we have to deploy our forces, we're still able to do that. We're working to put battery storage with that to increase our resilience. And again, this is a long-term effort. We're moving forward now and we're doing really well with it. We're getting a lot of solar out there. I think within the next year we've got 50 megawatts of solar under contract.

And also what I'd emphasize is, we're just beginning. You know, the administration has set the goals in their executive order. Secretary Wormuth has laid out the vision. We're now carrying it out. But these things take time. We're going to ramp up. You'll see increasing funding going toward it. You'll see increasing effort. And again, it'll be a curve. We're just – you know, we're starting to move up the vertical of the curve. It will take a little bit of time, but I'm optimistic that we're going to – we're going to make some great advances.

As far as prioritizing bases, yes and no. We're looking for opportunities everywhere. All of our installations need to be resilient, need to be modernized. But there are some bases that in a contingency, in a warfighting scenario, are more important, because that's where our forces are. So we have what we call power projection platforms, which are a handful of bases that are the prime installations where our combat forces will come from. So we're looking at them to make sure that those are resilient as quickly as possible. So we are, to an extent, prioritizing those. But that's not to say – it's not at the cost of the other installations. We're looking Army-wide to move everything forward.

Ms. Higman: Very good. I have to ask, within this implementation plan, the programmed sort of resources are allocated across these different objectives. And the installations LOE, or line of effort, has certainly the most resources allocated to it. But there's also a noticeable shortfall, particularly with respect to those

microgrids. So I wonder, are these partnerships going to sort of help bridge that anticipated gap?

Mr. Farnan: So it's a combination. One, yes, there are going to be partnerships. There is money from – within DOD that's not Army money. There are programs in the Office of the Secretary of Defense that we're tapping into that is to the tune of hundreds of millions of dollars that we'll be able to tap into, along with the other services, to do these kinds of things. Like I said, the outside groups, you know, private industry and utilities, we're working with.

But when you're looking at just the budget numbers, I think it's important to realize – and this goes back to what I said a moment ago – is that we're just at the beginning. You know, this is only 2022. We're not even two years into the Obama – oh, sorry – (laughs) – into the Biden administration. The '23 budget is really President Biden's first full budget. You know, the '22 budget was – you know, they came in at the beginning of 2021. They put – they scrapped together, you know, the budget – what they could – from the prior administration and put as much of their imprint on it as possible. But this is really the first one.

And if you just look at the numbers, just, you know, in 2022 there was allocated I think about $180 million for climate investments. In the president's '23 budget, that's already to up 450 million (dollars) and we anticipate that that's just going to continue to increase. The president has set this as a priority for our national – both as a national security threat and as an important thing to do for the United States as a leader in the world, so I think you're going to see it continuing to increase. So I wouldn't read too much into where the numbers are yet.

Ms. Higman: OK. Sharon, I see you scribbling notes.

Ms. Burke: (Laughs.)

Ms. Higman: When you think about this move toward renewables for Army installations, do you have any reflections on opportunities and challenges that Paul might not have touched upon yet?

Ms. Burke: Well, of course, Paul touched on everything that's important.

But you know, one thing that's really worth considering is there was historically – since we were talking about history – a distinction between the energy you use for military operations and the energy you use in your installations, right, and that installations were somehow overhead or part of your real property. But that line is increasingly blurry. And a lot of our installations are extremely operational, you know, either because they're a place where forces are going to deploy from but also we have a lot of

installations that are – that are supporting unmanned systems and intelligence operations from the United States so they are very much an active part of the – of the battle.

And you know, just in recent weeks we've gotten a good look at what the issue is here. I mean, when Ian was first tracking for Florida, it was like on the nose for MacDill Air Force Base. Not the Army's problem, but in a way it is because, of course, what's at MacDill Air Force Base? Special Operations Command and Central Command. So, you know, two big combatant command headquarters that are very actively deployed right now were – it was headed right for them. And you know, how resilient is that base? Not resilient enough for that. So these are very present questions for all of the military forces, and that – and again, the distinction between what's sort of home and you can afford to take some risk and what's very much in the fight and you can't.

So, you know, the question of renewable energy, as Paul said, you know, one of the distinctions here is what's going to make you more resilient, and renewable energy is something that you can generate locally and still remain tied to the grid and get the benefits of the scale too. And the microgrid and the storage sort of navigate those two possibilities, so it's kind of the best of both worlds.

And I think when the military – or, when the Army is defining what's in their own best interest to allow them to operate, that's when they really get to pull in their own innovative power. So putting microgrids and storage on the docket as something that's going to make the military operate better will be – could be transformative for those technologies, where there's a lot of commercial interest, but, you know – and there's a lot of money out there looking for a place to invest. So, in other words, the Army step here to do something that makes them a better Army has the potential to become a big benefit for the broader energy innovation economy.

Ms. Higman: Very good. I want to pivot to LOE 2, which is acquisition and logistics in the Army Climate Strategy. And I think of particular interest to this audience might be ideas about electrification of tactical vehicles. Paul, do you want to tell us about some of the objectives in that area?

Mr. Farnan: Sure. And like I said, this isn't the big field burn emissions one for us, but this is the direct impact on the soldiers.

So what we're looking at is how do we reduce the fuel need on the battlefield. The long-term goal is complete electrification of our tactical vehicles, but that is a long-term goal. Our goal is 2050. And quite simply – and I – people ask me this all the time, how are you going to do this – the honest answer is I don't know. And that's why the goal is out to 2050,

because we don't know how we're going to get there yet. The technology is not there to give us full electrification of tactical vehicles. I don't know how we're going to do battlefield charging yet. Nobody knows that.

Ms. Higman: But that's part of the near-term objectives in this implementation plan, right, is to think about that.

Mr. Farnan: Absolutely. And again, that's where the implementation plan, even though it's five years, it's setting the foundation for these longer-term goals.

And this is going to be an iterative process. We're already starting – we're getting ready to install anti-idle kits on our tactical vehicles. And that will allow us not full hybridization, but it will allow – so a lot of our combat vehicles, when they're out on the battlefield, they're not always moving. They'll actually spend hours just sitting in place. But because everything's electrified now – communications, radars, night-vision goggles, you name it – that vehicle and the soldiers within it, they need power to operate so you have to run the engine. The anti-idle kit is a big battery. It's close to being a hybrid. It basically – it lets you shut down the engine and still power everything. And by shutting down the engine, you're reducing your acoustic signature and your thermal signature, two things that weapons can hone in on. So just by doing this, we're not only reducing the amount of fuel these vehicles need and reducing the amount of fuel we have to move to the battlefield; we are providing better protection for our soldiers.

The next step is going to be the full hybridization and we're working with industry on getting our vehicles fully hybridized so that, again, it's a significant fuel reduction and it's an iterative process, so by the end of the decade, we'll be turning – we'll be actually producing hybridized vehicles. At the same time, we're setting goals, we're setting – you know, working out policies and strategies to how are we going to get to the battlefield charging to the full electrification of our tactical vehicles? We're working with our acquisition team, we're working with Army Futures Command to start figuring out now how we're going to get there and setting the intermediate goals so that we're not going to wait till 2035 to start thinking about the problem; we're thinking about it now and starting to work through the solutions.

Ms. Burke: Two things that are really interesting about this. One is that the Army's been interested in hybridization forever. They've been looking at doing this for vehicles for what, 20 or 30 years, because it gives you a performance gain and then also Army Futures Command was looking at, you know, some concepts with electrification of the battlefield, you know, 10 years ago, so there's always been interest there and now the times have changed and it's a much more robust interest. So this strategy is really building on some interest in the Army that's long-standing.

So you know, the one other thing about the acquisition process is that this is a specific piece of equipment where you're trying to figure out its role on the battlefield, and we did do a study back in 2013 that showed that some of the Army's heavy vehicles, the fuel demand for some of the newer generation of planned vehicles were actually going to be a liability on the battlefield, so this is really a direction that's about how do you operate better. But acquisition is also an interesting – there's two different opportunities here. There's this is a really important platform for the Army; how do you make it better? But then there's also the question of how do you just make everything better? So how do you build a better platform but also how do you change the way you acquire things so that, you know, it's not so much we're going to spend that money but it's more we're going to spend all of our money better? So that's part, I think, of the acquisition reform that –

Mr. Farnan: Yeah. And we're working closely with the acquisition team in changing the performance parameters that we look at and we've got a lot of support from the deputy secretary of Defense to make that happen across the services. So again, from day one, as we start thinking about new platforms, the use of energy is being much more incorporated into the thinking.

Ms. Burke: And that just makes you a better military at the end of the day.

Mr. Farnan: Absolutely. And before we leave LOE 2, I –

Ms. Higman: No, I don't want to leave LOE 2 yet.

Mr. Farnan: OK, good. (Laughs.)

Ms. Burke: Oh, OK. – Morgan.

Ms. Higman: We're talking about acquisition and I want to ask you about supply chain resilience and, you know, right now there are a lot of questions about where solar panels come from and whether we should be building electric vehicles in the United States, and these are topics that are of interest to civilians but, you know, the Army wields a big person. I'm sure that there will be some sort of market making happening as a result of these commitments, but also wonder if there will be some challenges associated with procuring some of these materials.

The other thing that I wanted to sort of raise, as we talk about acquisition, is Scope 3 emissions and the idea that we should be thinking about sort of the carbon footprint of these resources we're acquiring, not just the resources that we utilize for our own operations or your own operations.

Mr. Farnan: So that was probably going to be the two hardest questions I'm going to field today.

Ms. Higman: I'm glad I got to them.

Mr. Farnan: (Laughs.) Yes. The sourcing of the materials is absolutely an issue, and we are well aware of that. At the higher DOD level, that's really where they're looking at it and working with the Biden administration and how we actually on-source, onshore more of these materials. That's a much bigger question than me. I do know that yes, it is impacting us. Our orders for electric vehicles, for instance, the non-tactical vehicles, the cars that we drive on the bases every day. The Army put in an order in 2022 for 2,500 electric vehicles. Manufacturers came back and said no, we can give you 1,100. So we're facing those same issues that everybody else is facing. We will – you know, like I said, at the higher DOD level they are looking at this, working with the administration on how to do that, and they'll apply the brainpower and the resources to help make that happen, working with private industry obviously because this isn't a DOD problem, this is a national problem. DOD is not going to solve it. We'll help with what resources we can and the brainpower we can, but industry's going to have to really solve this one.

Ms. Higman: Sharon, do you have anything to add on that note?

Ms. Burke: I do – I mean, I think that there's been some recognition now for a while that – of supply chain issues and a lot of it was more about security of supply chain and, you know, where's that semiconductor coming from and can you trust it, and sort of the idea of trusted foundries. But COVID really shook that up and I think shone a bright light on the fact that we had a much more vulnerable supply chain than we knew. And I think the administration deserves a lot of credit for recognizing that that's a question you can only answer by bringing lots of different government tools to the table and working across the board with private sector and with foreign partners.

So things like the Defense Production Act, Title III, which the administration is using to try to make sure we're catalyzing key industries, again, whether it's semiconductors, or critical minerals, or across a whole range of industries. And Congress has been a good partner in that too, in taking a serious look at how we fix these problems. So, you know, that wakeup call was going to come sooner or later. And here it is. So I do think that we're seeing some very good, serious work on how we fix that problem. And we can't fix it alone. You know, we need to work with partners and allies too, so.

Ms. Higman: Sure. The last topic I wanted to touch on for LOE 3 is this idea of contingency basing, and what does – what do some of these new technologies do to enhance or challenge initiatives in this area?

Mr. Farnan: So contingency basing is a topic near and dear to my heart, and I know to Sharon's as well, from our work together a decade ago in the Pentagon. Contingency bases, they're basically the outposts that we set up when we're, you know, in territories for, you know, a small platoon or company-sized, you know, anywhere from 10 to 20 people to a few hundred people. And how we do that basically, everything is powered on that contingency base by diesel generators. So that – again, that's more fuel that we have to move through the battlefield to get to there.

So what we're looking at doing, and we're working with the acquisition people and with the contingency basing people, to set out a new policy. Because what happens is an infantry captain gets told: Hey, we need a base here, go set it up. Infantry captain has no idea how to set up a small city basically, nor should he or she. That's not what they're trained for. But they've got to do it. So they set up their structures and they plug in generators to every single tent, because you need electricity for your communications, for your cooking, for your heating, for your cooling, all of that.

What we need to do is actually change the paradigm a little bit, so that when this captain goes out and orders – has to set up a contingency base, he or she can just say: Hey, I need a base here. And the supply lines logistical support system actually just gives them what they need. And what we're doing is, for the tents, rather than just tents to put up, it's actually high-efficient shelters to make them more energy-efficient, to reduce the need. The generators that do, though, they have to be the most efficient generators. And we have tens of thousands of generators in our inventory. And we are slowly replacing them over the last decade with highly efficient generators that can also be hooked up to a microgrid for smart generation.

Speaking of which, all of the generators, they need to be hooked up to a microgrid, because what'll happen is you'll have a dozen generators out there powering a dozen different structures, and they're all running, you know, at 10 or 20 or 30 percent of their efficiency. Not a good use of fuel. By hooking them up to a microgrid, you can run instead of 12 generators at 30 percent efficiency, maybe you're running two generators at 100 percent. And that'll balance the load. Also battery storage. Need to hook up battery storage. That needs to be automatic. That comes with the generator, again, to increase the fuel efficiency.

We're also looking at portable renewable generation. There are solar panels that can be folded down and put into a container, brought out to the battlefield. And depending on the geography of where you are, you know, you can unfold them and that way, again, less fuel. If we can actually cut the fuel use again – if we can cut the fuel use by half, that's half of the fuel convoys that have to go out. That's half the time the soldiers have to go

outside the wire to protect these fuel convoys. I challenge you to find a soldier that won't be thrilled if they're told that they don't have go outside the wire to guard these fuel convoys quite as often. So we're really working to standardize all of that.

Ms. Burke: It's funny, though. I think our temptation is always – you know, nobody wants to be at war. And as soon as the war is over to be like, oh, thank God, we'll never do that again, right? So Vietnam, we'll never do that again. And the Cold War, we'll never do that again. And now Afghanistan and Iraq, you know, which were terrible wars. We're done, we'll never do that again. And so the temptation is always to say, well, we don't need contingency bases because we're never going to do that again.

But we're sending contingency bases to Poland right now. So, you know, as they say, the enemy gets a vote. And the question is, this time, will we have a better capability. Because what we sent our men and women forward in, to Iraq and Afghanistan, you know, I give the equippers, the programs, and the logisticians a lot of credit for the work they did to help those deployments and to create a lot of workarounds. But the institutional army and the institutional military shouldn't have had them in that shape in the first place. We should have had better equipment for them to deploy with after 9/11. And we didn't.

So, you know, I think it's – Paul and his colleagues are going to work really hard to make sure that this equipment is the best it could possibly be, and that we deploy with a small resource footprint because it makes us a better military. And the question is, will the Army prioritize and support that in a time when they don't think we're going to be deployed again? And of course, like I said, you know, the handwriting is already on the wall. We're already sending people forward that weren't there, you know, a year ago.

Mr. Farnan: And it's actually not just on foreign battlefields. It's actually here at home.

Ms. Higman: That's what I was thinking.

Ms. Burke: That's a good point, yeah.

Ms. Higman: It makes me think, if you can have this technology and send it to Florida after Ian –

Ms. Burke: Yeah, that's a great point.

Mr. Farnan: Exactly. The military deploys to support civil authorities in response to disasters. So if we set up a base camp in Florida, either to shelter the refugees whose homes were destroyed or for the emergency management workers, for the FEMA workers, for the volunteers, for the Army forces that

are going to go in and help with the recovery efforts. We don't want to be adding to the fuel convoys that have to go down there. You know, the roads need to be open for food, and medicine, and water, not for fuel to power our base camps. So if we – if we can actually, you know, have a camp that's, you know, minimal amount of fuel required, that helps the general public here too.

Ms. Higman: Very good. We're running low on time, so I want to pivot to LOE 3, which is about Army training. And so one of the topics there is about encouraging sort of Army forces to be more mindful of their individual footprint, and trying to lower emissions that way. Another one that I think is particularly important is sharing of lessons learned on a biennial basis. I wondered if you could give us a preview of what some of the training and lessons learned sort of formats might look like.

Mr. Farnan: Sure. So this really – it's about educating the force. It's about educating the force on the impact that climate has on our operations, and the impact our operations have on the climate. So we're looking, we're working with training and doctrine command. How do we put this into – you know, start educating soldiers in boot camp and through their professional education throughout their career? One thing that I'm actually really thrilled at, that we just announced this week, is a new partnership with West Point, where all of our future officers – well, not all of our future – a good chunk of our future officers are being trained.

We have agreed with West Point, and we're supplying some funding for this. West Point is going to actually form the Sustainable Infrastructure Resilience and Climate Consortium. SIRCC. I always forget what that stands for, but that's what it is. So they're going to get a couple new professors up there. They're going to actually put into the academic program sustainability, resilience, and climate impacts.

There's going to be a new class offered next fall for the cadets to take that deals with all of these – that deals with sustainable building, that deals with the resilience, and deals with the effects of climate change. There's going to be a speaker series, and we're going to continue to work with them on research projects for both the cadets and the faculty that not just for the education of the cadets and the faculty, but also to impact the Army. We're giving them real-world problems that we have to figure out. And both cadets and faculty are going to be working on that.

So we really – you know, the Army is leading DOD in addressing the climate issue. And we're actually, I believe, on the front edge of the federal government. West Point is now, as a federal educational institute, also going to be a leading institute addressing climate change and educating our future leaders.

Ms. Higman: And what do you think, Sharon, about the opportunity for the Army to sort of share lessons learned, either across military branches or among allies and partners in private industry?

Ms. Burke: I think it'll be really important. I mean, the Army, obviously, as a – as a culturally important institution in the United States that has a high approval rating, as an institution that has presence in a lot of places, and as a public good that's, you know, critical to our security as a country, the Army, you know, has the opportunity to make a big difference. So making it clear that this is something that they're doing for their own ends, and that they're educating their force in that, I think will make a big difference.

And I also wanted to pivot back to the question that we ducked, which wasn't on purpose, but about scope three emissions.

Ms. Higman: Scope three emission.

Ms. Burke: In the supply chain. The Office of the Secretary of Defense is about to put out a request for proposals for a big sustainability and climate as a service. At least that's what they've said is coming, you know, anytime now.

Ms. Higman: Yeah. Well, we'll look out for that, for sure.

Ms. Burke: And accounting for emissions throughout the supply chain is going to be part of that. And that will include – you know, that will be a matter of getting it into contracts and in the acquisition process so that the companies that do business with the Department of Defense, it'll be part of their business. That's how I anticipate they'll go.

Mr. Farnan: And along those lines, so I actually had a conversation with the leadership of the Corps of Engineers just last week talking about how do we actually, you know, account for embedded carbon content in our construction materials and sustainable materials. And one of the things that always comes up is the cost – is this more expensive? And on the front end, yes, it probably – it is.

But what we need to look at, it's not secret that we have some problems with some of our barracks that our soldiers are living in. So what we need to look at is, if we build with sustainable materials – with more efficient energy systems, with better insulation on our windows – in the long run, over the course of a couple decades that that building will be standing, does that actually protect the soldiers better from mold and other environmental issues that they're going to be facing? So, yeah, maybe it's a little bit more of a cost increase on the front end, but over the course of the lifecycle if it provides a better quality of life for our soldiers that's an investment that's worth making.

Ms. Higman: Very good. I think we've touched on a lot of the important aspects of the plan. I want to pause for just a moment and invite anyone in the audience who might have a question to take the mic. And if I don't see anyone jump up in a second or two – oh, there we go – (laughter) – there's some enthusiasm – we can wrap up, but I guess we'll take a couple questions.

Q: Is it on? Can you hear me?

Ms. Higman: Yeah. Yep.

Q: Hey, good morning, Paul, Sharon, panelists. My name is Brad Daly. I'm from General Motors Defense. And we've been anxiously awaiting this day, as many of us in industry have been working hard in this area and this is a springboard to go forward.

My question for you all is the aspect of, how will you or how do you see the leveraging of commercialization to the – accelerating the capabilities that we're discussing today? And how can we find greater synergies for the total Army as well as the synergies with our sister force as we go forward with each of the three lines of effort? Thank you.

Mr. Farnan: Well, first, thanks for being here. GM Defense is a great partner for the Army and for all of DOD, and I know that our leadership has been out to Detroit to see your setup and see your vehicles. And I, unfortunately, was not able to make the trip. Couldn't justify all of us going. (Laughter.) But I heard great stories and I am anxious to do more.

Really, the government's not going to solve this problem. We're going to do a lot and we're going to help with it. We're going to help find the solutions, but private industry is what's going to drive the solutions just like throughout our history. It's the private sector that is the innovation and a lot of the resources to actually make this happen.

And I know that both GM Defense and a whole bunch of other companies out there, they're advancing – you know, when we started talking about hybrid tactical vehicles, you know, and the debate inside the Pentagon was, well, can we really do this. And as we built the strategy, I kept getting pushback. And you know, I wanted to advance the timelines and go bigger and everything, but the acquisition people was like, well, this is realistic and this is what we can do. And then we go and we talk to some of the private industry, it was like, yeah, well, we've already got that. So, again, now we just need to incorporate it into our vehicles, which we're looking forward to doing. We're looking forward to increased partnership with you and with the rest of industry because that's how we're going to get this done.

So, absolutely, we want to find every opportunity to expand the partnerships, and work together to define the problem and then solve it.

Ms. Burke: I think there's two distinctions there, right? There's the non-tactical vehicles or passenger and light trucks where it's a question of this is a business and a large business that's trying to buy things for its business using its scale for a variety of reasons, including it's better operations, it lowers your emissions, it's better for your relationships with the communities around you – which for any large entity is going to be important, but for particularly one that recruits from the general population. So, you know, that's one thing, and that's a volume challenge. And that, I think, will really help with commercialization. The demand for those assets is growing anyway, but that's one kind of challenge.

On the tactical side, of course, you know, these vehicles are built for special purpose and they don't necessarily translate over into the public use, although it's in the Army's interest to be able to benefit from commercial innovation and not have to have everything be so bespoke. At the same time, in solving your problems for what your tactical vehicles need to do, there may be some innovation there that's novel that could come back to the private – the public use of the private sector. So I think working with a company like GM is in your interest because they crossed both the – both uses.

Mr. Farnan: Absolutely, especially with the heavier vehicles.

Ms. Burke: Yeah.

Mr. Farnan: As you're figuring out, you know, the trucks, you know, for industry and buses and whatnot, we're going to have the same problem with charging. You know, what's the effect on the grid of charging these heavier vehicles, and the technology that goes into the vehicles themselves?

Ms. Burke: And I think all the services should be looking at that, too, and how to, you know, win-win basically on this.

Mr. Farnan: Absolutely.

Ms. Higman: I want to get in – let's see – two more questions here.

Go ahead.

Q: Yes, thank you. My name is Chandler Myers. I am an analyst at Pallas Advisors here in D.C.

So, my first question is to both of you, and then, I do have a separate question just for you, Paul. So, I'll start with Paul for this question.

So, you talked about partnering with West Point. Was there any discussion for – or you know, with the Army partnering with other schools, sustainability schools in particular, because that's something that has occurred very recently? I mean, I think two weeks ago Stanford setup their sustainability school.

And so, is there any discussions with the Army, particularly partnering with sustainability schools, to encourage and get some of that talent into the department? And then, my question for both of you is, what climate change scenarios is the Army using to kind of force the output of the climate strategy and the implementation plan? Thank you.

Mr. Farnan: I'll take – so, for the education side, we've had some internal discussions about how we're going to tap into universities. It's just how we tap into private industry. I have not had any direct conversations with any universities beyond West Point.

I would be thrilled to have those conversations. They just haven't gotten to it yet, and now that we've got the implementation plan done – and what I've told my team is, you know, we're at the inflection point now.

You know, we spent the first year laying the strategy, getting an implementation plan done. Now, we've got to do it. So, now we've been doing a lot over the last year, but now we're really going to kick it into high gear.

So, I would love to actually explore, whether it's Stanford or any other university, absolutely fine partnerships because there's talent everywhere. I know a lot of people in the Pentagon like to think we're the smartest people in the country.

But there's an awful lot of talent in this country that we have to tap into. Because like I said, this isn't a DOD problem, this is a national problem. We need to take advantage of all the national talents. So, absolutely.

And whether it's through, you know, a partnership with West Point and another college, I think that'd be a great way to look at – for that route, but we'll absolutely look across the board on that.

Ms. Burke: And there are a number of investment programs that are enterprise-wide for the Department of Defense, like the – they're acronyms, so to figure out what they actually stand for is always a challenge.

But SERDP – the Strategic Energy Research and Development Program, I think; ESTCP; the Operational Energy Capability Improvement Fund; REPI – there's a whole, like, alphabet soup of programs, some of which do have partnerships with universities –

Mr. Farnan: Right. And we're actually working with Georgia Tech –

Ms. Burke: – and the Army will have a number of projects there. Yeah.

Mr. Farnan: – down in Fort Benning for land use.

Ms. Burke: Right.

Mr. Farnan: So, absolutely, we want to encourage more of those partnerships.

Ms. Burke: But the more direct partnership is a good question. You know, as for scenarios, would you like me to – so, that is an excellent question. And because, of course, planning scenarios drive a lot of – you know, if you think about at the end of it do we get this Army campaign and this Army platform. You know, there's this huge train of planning and strategy and requirements that generates all of that.

And planning scenarios were a big piece of it back in the early – which I assume is part of the reason you asked that question. Because if this isn't in that planning scenario process, then climate change really won't be in the end product, either.

So, across the department in October 2021, there was a requirement to begin – the secretary of defense laid out a requirement to begin incorporating climate change into planning scenarios, and there's now a number of efforts to figure out how to do that, including – I think pretty much all the combatant commands now have some wargaming going on, where they're using climate scenarios.

But you know, one of the things that's really interesting about that, is there's definitely a knowledge gap between the scientific climate scenarios that drive, say, the IPCC, the U.N.'s body, and that an organization like the Army, the kind of information they need to know in order to plan – like to actually say, what do – where do we need to put people? Where do we need to put things? What do we need to build?

There's a knowledge gap in there, an analytical gap, between the scientific models and what an end user needs. So the department's going to have to be providing a demand signal de facto in order to get those scenarios. So it's a great question.

Mr. Farnan: And two of the – I'll just jump in with two other scenarios, one of which really doesn't have to do with climate directly, but it's the contested logistics one. And we're working with the Joint Staff and the other services to actually put contested logistics into our wargaming.

One of the problems that we're facing – our logisticians, they are the best. They are the best in the world and they always have been. They have always been able to get the fuel, the ammunition, the equipment, whatever is needed to the battlefield. We never have to worry about it. We need to rethink that. In a world with a contested logistics line, the fuel is not always going to be able to get there. So what we need to be able to demonstrate is what happens when that fuel doesn't get there, because combatant commanders, battlefield commanders, they've never really had to face that scenario. So we need to show them that this is a real scenario and what the real impact is, and that's where – that will help drive the fuel efficiency, the fuel reductions that we need in our tactical vehicles.

And the other really quick – the other one, really quick, is just a contested homeland. Again, we've never had to fight in a contested homeland. But what happens – pick your adversary – there's a cyberattack at the beginning of that conflict and the grid goes down – and I'm not talking for a couple hours or days; I'm talking for months – how are we going to operate? How are the forces going to get where they need to go? It's not going to be a smooth flow that it's always been. You need electricity on your bases. You need resilient installations. And again, that – so that will all feed into the – it's really – it's changing the mindset, as Sharon said. And that's what we need to do. And by injecting these new scenarios that the military has never had to face before, that's how we're going to do it.

Ms. Burke: And I'm sure Russia's war in Ukraine has put a fine point on things because they've had to deal with a lot of contested logistics, so, you know.

Mr. Farnan: Absolutely. We've all seen the tanks sitting –

Ms. Burke: For a variety of reasons.

Mr. Farnan: – without fuel along the road. So you've got – you got to get fuel. The less fuel you have to move, the better you are.

Ms. Higman: All right. Well, I think that's a terrific note to end on with climate considerations. We're running a little bit over, so we're going to thank you for your –

Mr. Farnan: Can we do one last quick one?

Ms. Higman: OK, we'll do one last quick one. (Laughter.) Sorry. Sorry, media team.

Q: Thank you, Morgan. You've done a great job facilitating. Excellent discussion. Appreciate that. Andrew Morton, Schneider Electric.

Two questions. I'll start with one for both of you and if we don't have time for the second one I'll grab Mr. Farnan afterwards. But what – there's a lot of challenges you're trying to address, obviously. What do you think is the most complex challenge? Question to both of you.

And then, Mr. Farnan, for you: What are you most proud of in this plan? Thank you.

Mr. Farnan: I'm going to take the second one first. Really, what I'm most proud of is the way the Army came together. I came onboard a year ago and climate change isn't something that the military would naturally embrace. I was extremely pleased with how the Army embraced this. And I mean every facet of the Army, not just a bunch of policy wonks in the Pentagon. But we talked to every single major command in the Army and supporting commands below that. Everybody was fully onboard supporting, sending great ideas, working with us to hammer out details. You know, the good idea fairy in the Pentagon says, oh, we can just do this, and then when it gets to the ground – (laughs) – the soldiers just laugh; it's like, yeah, that's not possible. So we actually worked with people on the ground: Hey, this is what we want to do. Tell us how we can actually make that happen. So the way the entire Army embraced this plan, that's what thrills me the most to be perfectly honest.

I forget what the first question was. (Laughs.)

Ms. Burke: Complexity.

Ms. Higman: Complexity.

Ms. Burke: And I think that is – I mean, writ large, that's what we're all struggling with right now, right, is that we've got all of these different trends and drivers coming together at once, whether it's, you know, Russia's war in Ukraine and climate change, biodiversity loss, political challenges at home, the potential of a global recession, and you know, the increasing sophistication of the technology is certainly in your world – industrial control systems, cyber, all of this – AI – all of this is converging, these convergent trends. And the thing is, we're not set up to govern that way. We govern an issue at a time and then we have working groups that help go across that. So how do we govern in that world, where all of these very complicated trends are crashing into each other and we must respond? We have to anticipate. We have to respond. It's really hard. It's a really difficult governance challenge.

So as, you know, the end note, I would say is that's – for me, that's one of the reasons I really admire what you've done with this strategy because you're attempting to govern complexity in a way that makes sense for this institution and benefits it. And I think you did a really admirable job of making a clear case of why and how and what, and how much, so. (Laughter.)

Mr. Farnan: And I would certainly echo everything Sharon said. But I would also add the technological advances that are necessary. We are basically – and we face this across the broader Army and across the military. Like, we're building a force to operate in the future that still has to operate in the present. So a lot of these goals that we're not going to achieve until 2030 or 2040 and beyond, and we have to set the groundwork for now. So we've got to look at, you know, the self-sustained, carbon-free generation on the base. Well, the technology is not there to give us 100 percent resilience. So we still need these fossil fuels. So how do you balance the investments in making sure that our installations are resilient today when we need them to be, but still moving toward this future?

Ms. Higman: It's a great hanging question. Thank you so much for joining us, Paul, Sharon, our virtual audience. It's been a lovely conversation. Congratulations on your implementation plan.

Mr. Farnan: Thank you.

Ms. Burke: Thank you, Morgan. (Applause.)

(END)