

**The Honorable Michael B. Donley
Secretary of the Air Force
National Clean Energy Summit 5.0 – Power of Choice
Las Vegas, Nevada
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Introduction

Senator Reid, thank you for your kind introduction and for your continued leadership promoting clean energy solutions for our Nation. On behalf of the 690,000 active duty, National Guard, Reserve, and civilian Airmen I am privileged to represent, I'm honored to have the opportunity to share the Air Force story and to talk about how the Air Force and the Department of Defense (DoD) are approaching the energy challenges that impact our military missions.

DoD and Energy Security

In the Air Force, and across DoD, we are in the process of realigning to meet the new strategic guidance by continuing to modernize and develop a more capable force, while meeting the budgetary limitations agreed to in the Budget Control Act. Through this process, we are finding the proper balance between force structure and readiness. This modern force trades size for quality while ensuring we expand our capabilities.

Our energy strategy fits directly into these broader goals. Energy is a critical part of everything we do in the Air Force and across DoD. As we look to identify efficiencies and expand our capabilities, reducing the demand for energy and increasing the supply of alternative energy sources plays a significant role.

Over the last two decades, members of the U.S. Armed Forces have been working at a very high operations tempo, answering the Nation's call to undertake multiple major military operations. When we ask our service members to step, sail, or fly into harm's way, we have a duty to provide the tools and resources they need for success. Whether it's fuel for vehicles and aircraft, or batteries for tactical radios, or the electricity we generate to turn on lights and operate computers, having assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet mission essential requirements is critical.

Of course, none of this comes on the cheap. The Department of Defense is the single largest consumer of energy in the Nation, accounting for approximately one percent of U.S. national demand. DoD energy costs in Fiscal Year 2011 (FY11) totaled \$20 billion, of which about 75 percent, or \$15 billion, was dedicated to operational energy accounts that support military operations.

Within DoD, the Air Force consumes the largest share of energy, due to the large amount of fuel required to keep our aircraft flying. In FY11, the Air Force spent \$9.7 billion on fuel – more than eight percent of our budget – and aviation fuel comprised 86 percent of that bill. No matter how you count it, that's a significant amount, particularly when overall budgets are declining and energy costs are trending upward. Every dollar we don't spend on energy allows us to invest that dollar into enhancing a high quality and ready force.

As we build the forces we need for the future, energy will remain a critical concern. For example, the Defense Strategic Guidance released last January calls for renewing our focus on the Asia-Pacific region. The Air Force will play a vital role in that strategy, which also means that as we operate across this vast area, we must enhance our global reach capability, maintaining and improving our capacity to travel longer distances and for extended durations. Strategic airlift and long-range strike aircraft, both enabled by our aerial refueling tankers, come immediately to mind as key capabilities. We will need the energy to get there and to stay there.

Strategically, we should guard against the risks of over-dependence on single sources or narrowly-based sources of energy supplies. Access and cost of fuel can be impacted by natural disasters, accidents, terrorism, and political instability, and our installations are heavily dependent on the

commercial outside grid. Dependencies add risk to our core mission support functions and can jeopardize effectiveness. So, while the Air Force and DoD will help continue to depend on fossil fuels for the foreseeable future, renewable and alternative energy sources, such as wind, solar, and biofuels, will assure our energy supplies and increase our resiliency.

Energy and the Air Force

As the largest consumer of energy in the federal government, the Air Force recognizes the vulnerability and volatility risks of our dependence on energy supplies. To that end, we are fully committed to the three principles of our energy strategy – reducing demand, increasing supply, and changing the culture of every Airman by paying attention to the way we think about and manage our energy resources.

Reducing our demand for energy is the single best action the Air Force can take to improve our energy security and resiliency. We are reducing demand by using advanced planning tools for air operations, developing more energy efficient aircraft and engine technology, designing smarter buildings at our installations, and increasing our use of flight simulators.

The Air Force is also focused on improving efficiency, and everything we do has to make sense for accomplishing our mission. But the sheer

magnitude of our energy consumption dictates that any actions the Air Force takes to reduce energy consumption and procure alternative energy will potentially have significant impacts. Exciting things are happening in this area, and we may witness technology breakthroughs that transform the way we utilize energy in the future.

Air Force Initiatives Today

I want to mention a few concrete examples of the great work our innovative Airmen are doing to change the way we manage and think about energy.

Renewable energy on our installations is diversifying our energy supply. Last year, over six percent of Air Force electricity was derived from renewable sources of energy, surpassing federal goals. By 2025, we expect to increase our renewable energy consumption to 25 percent.

We have more than 180 renewable projects in operation or under construction on Air Force installations, including Nellis Air Force Base here in Nevada. We are very proud of the groundbreaking work that is occurring here at Nellis, where a solar array spanning 140 acres and generating 14 megawatts of power is saving the Air Force \$1 million a year. Other bases are using energy based on wind turbine technology. An important theme here is giving local commanders the opportunities and incentives to pursue

technology solutions that make the most sense for their specific location and circumstance.

The Air Force is also leading a DoD effort to integrate electric vehicles into each Service's vehicle fleet. As part of this initiative, Los Angeles Air Force Base is scheduled to become the first federal facility to replace 100 percent of its general purpose vehicle fleet with plug-in electric vehicles. One of the really exciting aspects of this project is that it goes beyond simply using electric vehicles as transportation, and looking at how we might use these vehicles to provide additional sources of power for the commercial grid.

Our mobility airlifters, who transport our forces and supplies all over the world, reaching austere locations that are inaccessible by road, are also finding solutions to chip away at our energy challenges. For example, the Air Force expects to save \$325 million over the next five years as a result of aviation fuel efficiencies such as reducing weight on aircraft, taking more direct flight paths, and paying closer attention to the center of gravity on loaded aircraft.

On the alternative fuels front, the Air Force has fully certified all of our aircraft inventory – more than 5,000 aircraft across about 40 airframes – to use a synthetic fuel blend. By 2013, the Air Force will have certified our fleet to fly on at least one biofuel blend. Less than 2 months ago, the Air

Force once again made history when we flew an A-10 at Eglin Air Force Base in Florida, the first aircraft to use a new fuel blend derived from alcohol.

DoD's primary goal when it comes to alternative fuels is to ensure the fuels can be used to improve readiness and resiliency by increasing our ability to use multiple, reliable fuel sources. The Air Force, Army, and Navy are actively collaborating with private industry and other government agencies to ensure we make the best use of our investments as we certify our platforms to use alternative fuels. Alternative fuels definitely offer promise for the future, and we are testing multiple alternative fuels because we want to be ready when private industry can produce cost-competitive fuels that meet our specifications.

Research and Technology

The Air Force is known for its innovation, and researchers and scientists in our labs are working diligently to help develop the game changing technologies that will be essential to future operations.

Last January, the Air Force released a report called Energy Horizons, our technology strategy to align research and development to Air Force energy goals. This is the blueprint that will help guide our science and

technology investments, identifying the promising energy research areas where the Air Force should lead, follow, or watch.

Improving the fuel economy of our aircraft is one breakthrough that could pay enormous dividends, and the Air Force continues efforts to reduce demand and optimize energy efficiency in current, next generation, and future aircraft through advanced research and development programs. One example is the Adaptive Engine Technology Development (AETD) program, an aircraft engine architecture development program which will combine the high performance capability of military engines with the fuel efficiency of commercial engines, with a goal of significantly reducing average fuel consumption by 25 percent. AETD, like our other turbine engine work, is closely coordinated under the Versatile Affordable Advanced Turbine Engines (VAATE) program, which is a joint effort involving the other Services, NASA, the Department of Energy, and private industry. We have already made some advances in the engine itself and through the transition are now looking at how these advances will integrate into a variety of programs.

A major initiative at the DoD-level is the Installation Energy Test Bed, which was established in 2009 to test and demonstrate new energy technologies in a real-world environment. By centralizing risk and distributing the benefits of new technology to all DoD installations, the Test

Bed can provide a significant return on DoD's investment and help overcome the barriers to commercialization faced by new energy technologies. These are the kinds of R&D projects that will not only benefit the Air Force and DoD, but if successful will generate commercial sector interest and innovation as well.

Public and Private Sector Partners

The Air Force and all of the military Services have established aggressive goals to become a more energy secure force. Case in point, each Service has established a one gigawatt, or 1,000 megawatt renewable energy goal. For the Air Force, the goal is to have 1,000 megawatts of renewable energy in place by 2016.

Earlier today, you heard from the Secretary of the Interior, Ken Salazar, about the DoD-DOI memorandum of understanding that was recently signed to promote renewable energy development on military installations. We are excited about the possibilities that this agreement presents and what it represents in terms of our ongoing interagency cooperation. No single agency can easily reach its goals on its own, but effective partnerships and teamwork can help all of us get closer to achieving our priorities.

This MOU follows a similar agreement the DoD signed with the Department of Energy two years ago. That commitment has helped move innovative energy and conservation technologies from laboratories to military installations for real world testing.

From the perspective of the Air Force and our sister Services, we know we will need partners from the private sector to reach our energy goals, partners who are interested in bringing renewable energy projects onto our bases. We're going to need to find creative options that take advantage of industry innovation, financing, and the best of public-private partnerships. Leveraging third-party financing is the only way we will achieve our renewable energy generation and efficiency goals.

Role of Airmen

Air Force-driven initiatives are important, but it is critical to remember that Airmen play a key role in achieving our energy objectives. The Air Force was founded on new technologies, and innovation in energy is a natural extension of that legacy. Our Airmen are innovators who have identified new policies, processes, and technologies to improve the ways we use energy. These individuals have made us more energy secure and enhanced our capabilities. We will look to their continued creativity and

focus on energy to obtain an assured energy advantage in air, space, and cyberspace.

October is Energy Action Month in the federal government, and our theme this year is “I am Air Force Energy”. During the month, we will be celebrating the accomplishments of our Airmen innovators and sharing best practices to foster a more energy aware culture.

Some of those accomplishments have been recognized outside the Services. Last month, the Department of Energy announced that the Air Force won six Federal Energy Management Program (FEMP) awards. These winners helped save the Air Force more than \$150 million and 42 million gallons of jet fuel. These six winners are in addition to seven winners in 2011 and three winners in 2010.

An example of one of these winners is Captain Reid Touchberry, the energy manager at Misawa Air Force Base in Japan. Following last year’s earthquake and tsunami, Captain Touchberry used GeoBase earthquake response maps to track deployment of generator assets and develop alternative refueling methods after access to the refueling port was compromised. He also educated his colleagues on energy efficiency and developed a plan to operate the base with limited electrical power.

As a result of his efforts, the base was able to continue to execute its mission during a critical time and the installation now maintains a more energy efficient operation.

Conclusion

Captain Touchberry's example reminds us that energy is a necessity for all Air Force missions and operations, impacting what we do on land, on the sea, in air and space, and in cyberspace. We face challenges as our military adjusts to the changing strategic environment and to the budget limitations set by the Budget Control Act. But as our force gets smaller, it will be even more critical for the United States to maintain the strategic advantage that assured access to energy provides.

The Air Force has always been a forward leaning organization, always at the forefront applying new technologies to strengthen U.S. national security. And throughout our history, we have demonstrated the flexibility to evolve according to changing needs and requirements. Once again, the Air Force has shown that we can successfully begin to tackle many of our energy challenges. We are building resiliency into the full range of our mission activities, and enhancing energy security by assuring supplies that reduce dependence on expensive energy sources.

But this is a marathon and not a sprint. Persistence and commitment will be needed to provide the energy options and flexibility our civilian and military leaders need. By improving the way DoD uses energy, we can create a more agile, lethal, adaptable, and effective force.

Thank you for your support for all of our men and women in uniform, and for helping us build an Air Force that future Airmen will be proud to lead and serve, an Air Force ready to fly, fight, and win in air, space, and cyberspace, whenever the nation calls.

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