

16 January 2009

[Inside the Air Force](#)

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## **BILLINGS: AIR FORCE BEGINNING AVIATION BIOFUEL CERTIFICATION EFFORT**

After years of focusing on coal-based synthetic jet fuel, the Air Force has kicked off an effort to certify its aviation fleet to fly using biofuels, the service's top energy official told Inside the Air Force this week.

This move is the latest evolution in the Air Force's energy policy seeking a more diverse and -- potentially -- environment-friendly fuel supply that began with the service's push to certify its entire aviation fleet to operate on coal-based synthetic fuel by 2011.

"The newest twist [in the Air Force's energy portfolio] is that we're going to do a similar program to certify biofuels," said Kevin Billings -- the service's acting assistant secretary for installations, logistics and environment -- during a Jan. 14 interview at the Pentagon. "That will both create the ability for our planes to fly on biofuels [by doing] the testing and certification the same way we're doing with the Fischer Tropsch-based synthetic fuels blends -- and we will have the toolbox of [different fuel] resources available when they come on the market."

The first step in this process is for scientists at the Air Force Research Laboratory to identify which types of biofuels are suitable for use in jet engines. The service is looking at everything from algae-based fuels to even bio-engineered microbes that "someday can produce oil and when they die you can extract it," said Billings.

Traditional biofuels made from corn or ethanols do not have the energy density to be compatible with jet fuel, said Billings. However, algae-based biofuels can create the long hydrocarbons needed to power jets, according to the assistant secretary.

To do all this, the service will incorporate the lessons it has learned from a nearly three-year-old effort to certify all Air Force planes to fly using coal-to-liquids-based [CTL] synthetic fuel, according to Billings.

"Right now, we're just beginning to put the testing process in place and go through the rigors of how do we take the lessons learned from the [CTL] certification process that we have ongoing now and adapt that to different types of biofuels," said Billings. "It's going to be a very disciplined, systematic approach to determine which are the best fuels."

This move could be a serious boon to biofuel researchers and producers, as the service is the largest energy-buyer in the federal government. The Air Force spends close to \$6 billion each year on aviation fuel alone.

Until now, the service's synthetic fuel effort focused on using a coal-based jet fuel mixed with standard aviation fuel. However this presented a host of challenges on the environmental front. The technology that would allow "green" coal-based jet fuel production has not yet made it out of the lab.

The ultimate aim of the Air Force's synthetic fuel effort is to be ready to fly half of its stateside missions on synthetic jet fuel by 2016. Service officials have long claimed that they will only use such fuel if it is cost-effective and as clean or cleaner than standard jet fuel. However, using today's mining and refining techniques, coal-based jet fuel emits more greenhouse gases than conventional fuel.

Last month, Air Force Secretary Michael Donley signed a policy memo officially committing the service to the 2016 synthetic fuel goal along a host of other efforts aimed at dramatically improving the service's energy security (ITAF, Jan. 9, p7). -- John Reed