Energy Conference spotlights military's green energy

March 22 2011, By David L. Chandler

Ray Mabus, U.S. Secretary of the Navy, addresses the 2011 MIT Energy Conference. Credit: MIT Energy Conference

It's not surprising that the U.S. Navy should be at the cutting edge of new energy alternatives, said Secretary of the Navy Ray Mabus, speaking at the annual MIT Energy Conference on March 5. Innovation in energy is something the Navy has led on for over 150 years, he said, starting with pioneering the switch from sail to coal for powering its ships in the mid-19th century, then the switch from coal to oil, and later from oil to nuclear power.

"Every time," he said, "there were naysayers, who said you're trading one

form of proven, available energy for another that is expensive and not well known, and you shouldn't do it." But, he added, "every single time, those naysayers have been proved absolutely wrong, and they'll be proved wrong this time."

This time, it's a switch to renewable, non-fossil sources of energy that the Navy has been pioneering. And it has many very good reasons for doing so, Mabus stressed. First and foremost, the reasons are strategic, he said. "We use too much fossil fuel from volatile places on our planet," places that we would never dream of allowing to have so much control over any other aspect of our military planning or preparedness, he said. But because of our dependence on oil, "we do give them a say on whether our ships run, whether our planes fly."

The annual conference, now in its sixth year, is entirely organized by a group of more than 100 MIT students. This year's event featured several workshops at MIT and a large energy exhibit on Friday, March 4 and a full-day session on Saturday, March 5 at the Westin Copley Place hotel. In addition to an opening keynote speech by Mabus, the event featured several panel discussions, a lunchtime session with short presentations by energy-related MIT spinoff companies, and a concluding keynote speech by James Rogers, head of Duke Energy, one of the nation's largest electric utilities.

Mabus, in his talk, explained the importance of energy issues to the military by pointing out that "In purely economic terms, every time the cost of oil goes up $1 [per barrel], the Navy spends an extra $30 million." And that extra money, he said, does nothing to protect this nation. And the concerns reflect more than just money: Lives are at stake as well, he explained. "The army did a study that found for every 24 convoys" of fuel to troops in the field, "we lose a soldier." So improving the fuel efficiency of military vehicles could translate directly into saved lives.

As a result of these concerns, Mabus said, “What we are doing in the Navy is treating energy as fundamentally an issue of national security.” And that includes improving the energy efficiency of all of the Navy and Marines’ buildings, not just their vehicles, Mabus said.

Cutting fossil-fuel use in half

He said that in order to act on these concerns, he has set major goals, including one that calls for at least half of all energy used by those service branches to come from non-fossil sources, no later than 2020. To implement that, among other things, they plan to make use of biofuels as a replacement for petroleum in helicopters, jet fighters and other vehicles. And the Navy has already launched its first ship powered by a hybrid drive — dubbed by the New York Times as the “Prius of the seas” — that uses only electric power up to 12 knots of speed, and is presently on its first sea voyage. That one ship, Mabus said, will save $250 million in fuel costs over its lifetime.

“I really don’t care what kind of alternative fuel we use,” he said, as long as it meets a few basic requirements: It has to be a “drop-in” replacement for existing fuels, requiring no modification to the engines; it can’t take land out of food production; and it has to leave an overall smaller carbon footprint than the fuel it replaces. “Other than that, we’re exploring all forms,” he said.

Because it is such a huge user of energy — the Department of Defense is the nation’s largest single energy consumer, consuming 2 percent of U.S. energy production — the military can have a big effect on the energy industries just through its buying decisions, Mabus said. “Just from the small amounts of biofuel we’re buying, the price came down 50 percent last year,” he said, and a similar decrease is expected this year. And that purchasing power can also be used to help spur the creation of new companies or new initiatives within companies, in order to serve their

needs. In a twist on a line from the movie “Field of Dreams,” he said that “if the Navy comes, they will build it.”

“We want to help small business, and be partners in exploring some of these alternatives,” he said. He pointed out that military research has always contributed to major technological innovations, from the Internet to GPS, and “we’re confident we can do the same thing” in the field of energy. Toward that end, they are investing in such areas as advanced battery research. And addressing the MIT students, including those who were the organizers of the conference, he said, “You are doing the work that’s going to make America energy-independent.”

The Navy and the Marine Corps, he said, “want to be partners in all this. We’re going to be innovative, willing to take a chance, persistent, and come out the other side victorious.”

Another session of the Energy Conference also explored the issue of military leadership on energy issues. In that panel discussion, former director of Central Intelligence James Woolsey said that getting rid of the nation’s dependence on oil is a major priority for national security, and that the widespread use of electric and hybrid cars could play a significant part in achieving that. Countering some criticisms of that approach that say this is just shifting the emissions from one place to another since new powerplants, potentially including new coal-powered plants, would need to be built to handle the added load, he said that studies have shown “two-thirds of all cars could be electric before you would need to build one new powerplant.” That’s because most vehicle charging would take place at off-peak times using existing sources, he said.

There are many different arguments for wanting to shift away from fossil fuels, including minimizing climate change, improving national security, and pure economics, Woolsey said, and they are all valid. “If

you move away from oil, it doesn't matter why," he said. "You can get off oil for a number of reasons, and they're all good reasons."

This story is republished courtesy of MIT News (web.mit.edu/newsoffice/), a popular site that covers news about MIT research, innovation and teaching.

Provided by Massachusetts Institute of Technology

Citation: Energy Conference spotlights military's green energy (2011, March 22) retrieved 28 April 2024 from https://phys.org/news/2011-03-energy-conference-spotlights-military-green.html