

Case Study: Transportation Initiative Incorporates Alternative Fuels and Electric Vehicles

The Captain James A. Lovell Federal Health Care Center (Departments of Veterans Affairs and Navy) in North Chicago, Illinois, reduced greenhouse gases by incorporating electric vehicles and alternative fuels into fleet operations. Lovell FHCC increased its electric fleet by 200 percent in one year. In addition, it increased the use of E85 ethanol from 54 to 60 percent and incorporated biodiesel, which now accounts for 10 percent of the total fuel used.

Lovell FHCC's interdisciplinary Green Environmental Management Systems Committee used the U.S. Environmental Protection Agency's Federal Green Challenge as the impetus to reduce the greenhouse gas emissions produced by its fleet. This 126-vehicle fleet includes buses, trucks and cars. At the beginning of the project, Lovell FHCC's fleet had one electric vehicle. Forty-five percent of the fleet's fuel consumption came from traditional fuels such as gasoline and diesel.



Three electric vehicles used by Lovell FHCC.

Key Topics

- Electric vehicles.
- Alternative fuel.

Results

- 200 percent increase in electric vehicles.
- Two electric vehicles averted the use of approx. 900 gallons of gasoline.
- 71 percent of transportation fuels used are alternative fuels.

Facility at a Glance

- 120-acre campus with numerous buildings including a full hospital, residences and power plant.
- Serves sailors at Naval Station Great Lakes and veterans from northern Illinois and southern Wisconsin.
- Participant since 2011 in the FGC categories of energy, transportation and waste.
- Recipient of EPA National FGC Award: Transportation.
- Recipient of EPA Region 5 FGC Award: Overall Achievement and Innovation.

Sustainable Materials Management

Federal Green Challenge



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Alternative Fuel and Electric Vehicles

After switching its fuel mix to include the use of biodiesel and a larger amount of E85 ethanol, Lovell FHCC was able to decrease its use of regular gasoline and diesel fuel consumption to 29 percent of the total fuel used. The committee collected fuel consumption data using its on-site fueling station sources.

In addition, Lovell FHCC purchased two new all-electric trucks, further decreasing the center's greenhouse gas emissions. Committee members knew the best way to gain management support for electric vehicles was to justify the project's cost-effectiveness over time. Using a full-sized pickup truck with an average 7- to 8-year lifespan as a baseline and examining the direct (Scope 1) carbon dioxide emissions from the operation of the vehicle, they provided clear evidence that purchasing mini-electric pickups would not only reduce Lovell FHCC's greenhouse gas emissions, but also save

money in the long term with decreased maintenance and fuel costs. It's estimated that in one year the use of these two electric trucks avoided the use of nearly 900 gallons of gasoline and eight metric tons of carbon dioxide equivalent from that fuel.

The biggest challenge was finding a suitable electric vehicle to replace Lovell FHCC's utilitarian pickup trucks. Most commercially available electric vehicles were too small and not rugged enough to handle the health care center's needs. Funding the purchase of new electric vehicles was also a challenge as their high initial cost meant that Lovell FHCC needed to find a reliable vehicle with a long lifespan to achieve a pay-back. Fortunately with diligent research, committee members were able to find an all-electric vehicle similar to a pickup truck to meet the rigors of Lovell FHCC's day-to-day operations while providing many years of service.

About the Federal Green Challenge

The Federal Green Challenge, part of EPA's Sustainable Materials Management Program, is designed to challenge federal agencies throughout the country to lead by example in reducing the federal government's environmental impact. It helps agencies meet obligations under Executive Orders 13514 and 13423.

In 2012, nearly 300 federal agencies, representing more than 500,000 employees participated in the Federal Green Challenge. Their combined efforts resulted in an estimated cost savings of more than \$31 million to U.S. taxpayers.



For More Information

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Federal Green Challenge:

<http://epa.gov/fgc>