



Johnson Space Center Center Operations Directorate

JSC Case Study: Fleet Experience with E-85 Fuel

Advancing the Choice (ATC)
Humble Civic Center
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Kirk Hummel, P.E.
Environmental Engineer/ Air Specialist



Center Operations Directorate
JOHNSON SPACE CENTER



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History/ Background

Numerous Federal laws and Presidential Executive Orders require that the Federal Government show leadership by reducing petroleum consumption. This includes both purchase of alternative fuel vehicles (AFVs) and increased use of alternative fuels:

- **Energy Policy Act of 1992 (EPAAct 1992)**
- **Executive Order 13149 (E.O. 13149)**
- **EPAAct 2005**
- **E.O. 13423**
- **Energy Independence and Security Act of 2007**

However, compliance with these mandates remains a challenge.

How did you decide to introduce E-85 into your fleet?

- **Starting in 2003, JSC began planning for E-85 onsite infrastructure to increase the number of Flexible Fuel Vehicles (FFVs). This was part of an overall Agency strategy to comply with Presidential Executive Order 13423 and the Energy Policy Act.**
- **As a Federal fleet, we are required to reduce our petroleum consumption by 2 percent per year, and increase the use of alternative fuels in our Federal fleet vehicles.**
- **E.O. 13423 also required agencies to increase alternative fuel use by 10% per year relative to the previous year.**

How did you decide to introduce E-85 into your fleet? (Cont.)

- **Nearby retail compressed natural gas (CNG) station was unreliable and permanently shut down in January 2005 after a lightning strike.**
- **In October 2004, JSC became the second federal fleet in Texas and the fifth NASA center to add E-85 fueling capability.**

Ribbon Cutting



What obstacles have you faced in implementing this strategy?

- **JSC currently has 70 GSA-leased FFV vehicles. In some years, GSA was unable to supply the requested number of FFVs to NASA.**
- **No “reasonably available” retail E-85 fuel stations [i.e., within a 15-minute drive or within five miles (one way)].**
- **Mobile refueling services not interested due to low monthly fuel consumption.**
- **Because the GSA vehicle lease includes maintenance and fuel costs for the vehicles, JSC tracks fuel use to each vehicle and submits monthly reimbursement statements to GSA to recoup the expense of supplying our own fuel.**

What obstacles have you faced in implementing this strategy? (Cont.)

- **There were no E-85 compatible Stage 2 vapor recovery systems available (Waiver)**
- **In late 2006, Underwriters Laboratories suspended listings for E-85 dispensers; research is ongoing to re-certify.**
- **Fuel supplier has changed three times in five years; currently using a Defense Energy Support Center (DESC) contract.**
- **We have experienced a few fuel contamination/ quality control issues.**

What role did partnerships with external organizations play in realizing your solution?

- **Good information on E-85 was obtained from the National Ethanol Vehicle Coalition (NEVC).**
- **We also spoke with DESC, Lawrence Berkeley Laboratory, and US Army Fort Leonard Wood.**

What benefits has your organization gained from implementing this strategy?

- **E-85 is a liquid fuel that is dispensed into our Flexible Fuel Vehicles (FFVs) identically to regular gasoline, so it was easy for vehicle drivers to make the transition.**
- **JSC has a 1000 gallon onsite tank and dispenser at a well-lit, covered location.**
- **JSC has increased alternative fuel use, totaling 33,000 gallons since installing the dispenser in October 2004. This contributed to the Agency achieving the goals of EPAAct.**

What advice would you give to other fleet managers who are looking to introduce E-85 into their fleets?

- Check out the NEVC website: <http://www.e85fuel.com>
- See Clean Cities 2009 Vehicle Buyer's Guide for current models of FFVs: <http://www.afdc.energy.gov/afdc/pdfs/43846.pdf>
- Find your proximity to existing retail E-85 pumps: <http://www.afdc.energy.gov/afdc/locator/stations/>
- Review the DOE Handbook for Handling Storing and Dispensing E-85: <http://www.afdc.energy.gov/afdc/pdfs/41853.pdf>
- For on-site fleet fueling equipment: See NFPA 30A “Code for Motor Fuel Dispensing Facilities”, Petroleum Equipment Institute, and Underwriters Laboratories standards.
- Contact other fleet managers or facilities that have already switched.

Questions? / Contact Information

Thank you!

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Contact Information:

Kirk Hummel, P.E.

NASA JSC Environmental Office

Mail Code JE111

2101 NASA Parkway

Houston TX 77058-3696

Phone: 281-483-6642

E-mail: kirk.e.hummel@nasa.gov