Clean Cities National Parks Initiative Project Considerations

Background

The U.S. Department of Energy's (DOE) Clean Cities program and the National Park Service (NPS) are partnering to implement transportation-related projects that use renewable and alternative fuels, electric-drive and advanced vehicles, and fuel-saving strategies that reduce petroleum use and emissions. Projects implemented through this initiative will educate park visitors and employees about the benefits of these technologies and strategies, including reduced vehicle congestion, noise, air pollution, and dependence on imported petroleum. For more information about the Clean Cities National Parks Initiative (CCNPI), see www.eere.energy.gov/cleancities/national_parks.html.

Purpose

This document outlines considerations to be evaluated by NPS fleet, facility, and management staff when considering vehicle acquisition, infrastructure development, and related decisions. It was created during the evaluation of project proposals submitted through the Clean Cities National Parks Initiative.

Considerations

Agency Mission and Goals

- Mandates: CCNPI projects must help NPS meet or exceed mandates, with the goal of reducing petroleum consumption. Specific goals include:
    - 2% per year reduction in petroleum consumption
    - 10% per year increase in alternative fuel use
    - Increases in alternative fuel vehicles (AFVs) at acquisition or replacement
    - GHG emissions reductions
    - Optimization of fleet and fuels used through effective fleet strategic plans

  See www.eere.energy.gov/femp/pdfs/sustainabilitycrosswalk.pdf for a consolidated list of mandates.
- Regional Concurrence: Fleet-related investments must have the support of the Regional Director, regional fleet managers, Alternative Transportation and contracting staff (if applicable), etc. Consider regional and other program priorities.
- National Priorities: CCNPI Project proposals must fit in with national NPS priorities and fleet strategies.

Vehicle Acquisition

Acquisition Channels: Federal fleets have a few primary channels available through which to acquire vehicles. Agencies may lease vehicles through the General Services Administration (GSA) Fleet program or purchase vehicles through GSA Automotive. The costs and benefits of each acquisition channel must be evaluated to determine the appropriate mix of acquisition types.

In an effort to support GSA's and the federal government's efforts to increase availability of alternative fuel vehicles, applicants are encouraged to include utilization of the GSA program in their proposals. Taking advantage of the GSA replacement program for new alternative fuel and advanced vehicles, rather than buying outside the GSA process, will ensure that vehicle life cycle considerations, including operation and maintenance (O&M) and replacement, are accounted for. The GSA program is expanding the availability of alternative fuel vehicles: See www.gsa.gov/afv.

Right-Sizing & Vehicle Allocation Methodology: On May 24, 2010, President Obama issued a Presidential Memorandum-Federal Fleet Performance. The memo required that agencies work with GSA to create a Vehicle Allocation Methodology (VAM) to ensure federal fleets are sized appropriately and comprised of the appropriate vehicles to optimally meet fleet mission requirements.

In practice, the goals of a VAM can be achieved during the acquisition process by selecting the most fuel-efficient vehicle to meet mission requirements.

Vehicle Mission Analysis

Vehicle acquisitions decisions should result in the selection of the most fuel-efficient vehicle to meet mission requirements. Similarly, the most fuel-efficient vehicle should be used for each activity during daily operations.

The following are examples of vehicle capabilities that often result in reduced vehicle efficiency and should be avoided unless necessary for the activity at hand:

- Off-road capable 4X4 vehicles
- High passenger-count vehicles for trips with few passengers
- Large cargo-hauling capable vehicles when hauling capabilities are not needed

Fleets may require expanded vehicle capabilities to meet organizational missions and objectives. However, fleets should take steps to avoid using vehicles with expanded capabilities for low passenger-count on-road travel. One approach is to design the fleet in a pooled structure[1] across organizations, where drivers are not assigned a specific vehicle, but have an opportunity to choose the appropriate vehicle for a given task. Under this scenario, small, highly efficient vehicles are available for low passenger-count travel, and less efficient vehicles with expanded capabilities are available for only instances in which they are required.

Consider whether vehicles with expanded capabilities are absolutely necessary to meet mission requirements. Addressing the structure of the fleet during the acquisition process can lead to an appropriately sized fleet that can most efficiently meet agency requirements.

[1] "Fleets Find Savings With Motor Pool Technology." Government Fleet. November/December 2011. www.government-fleet.com/Channel/Fuel-Management/Article/Story/2011/11/Fleets-Find-Savings-with-Motor-Pool-Technology.aspx.

Vehicle Efficiency Analysis

To achieve the highest reductions in GHG emissions and petroleum consumption, it is important to consider both vehicle miles traveled and a vehicle's fuel economy rating (in miles per gallon, or MPG). This approach captures a vehicle's total fuel consumption rather than only focusing on an increase in fuel economy.

While every fleet is unique, the following relationships are typical:

- Older and larger vehicles are typically less efficient
- Replacement of high-mileage vehicles will achieve the greatest fuel savings
- Replacing small sedans may not provide the greatest overall fuel savings for the fleet

Considerations:

1. Types and numbers of vehicles proposed to be acquired, as well as their estimated costs.
2. Annual fuel consumption of each vehicle being replaced compared to the annual fuel consumption of vehicles proposed for acquisition.
    a. Estimates can be calculated by dividing the annual vehicle mileage by the vehicle MPG rating (for existing vehicles) and by dividing the expected annual mileage by the expected MPG rating (for new vehicles).
    b. The expected fuel savings is the difference between annual fuel consumption of the outgoing vehicle and the expected annual fuel consumption of the incoming vehicle.
3. Expected emissions reductions are roughly proportional to the calculated fuel savings.
4. Any proposals that would result in an increase in the number of vehicles in the fleet may need to be justified.

Alternative Fuel Infrastructure Analysis

When considering a project, it is important to determine the availability of local fueling infrastructure. Taking advantage of local existing alternative fuel infrastructure can support communities' efforts to increase alternative fuel use and help defray the costs of implementation while attaining the desired petroleum-use and GHG emissions reductions. If new infrastructure is absolutely necessary, the benefits are increased if the general public or other local fleets are able to fuel at the location.

Considerations:

1. Does alternative fuel infrastructure currently exist in the area where the fleet operates? (See www.afdc.energy.gov/afdc/locator/stations/ for alternative fueling station locations.) If so, new infrastructure may be unnecessary. If not, the fleet may not have adequate access to fuel for the long-term.
2. Are there vehicles available for acquisition that can use the existing or proposed infrastructure and meet mission requirements?
3. If new infrastructure is installed, will the general public or other fleets have access to the fuel? Can the infrastructure be installed in the surrounding community in order to be more publicly accessible and not require NPS installation?

4. Is there a broader effort in the region of the fleet to expand availability of the chosen alternative fuel type?

Education and Outreach Analysis

Internal and external education is an important way to spread the word about reducing our dependence on petroleum and reducing GHG emissions. Consider incorporating ongoing education and outreach strategies to maximize the number of employees and visitors made aware of the project and its purpose.

Project Metrics

It is important to measure a project's effectiveness in achieving specific goals. Using standard metrics to summarize the expected impacts of a project is also a useful way to compare potential projects or investments in order to select the best opportunities for petroleum savings, GHG emissions reductions, and education of employees and visitors.

Useful project metrics include the following:

- Number of gallons of gasoline or diesel fuel use reduced per year
- Annual reduction in GHG emissions (measured in metric tons CO_2 equivalent)
- Number of visitors impacted each year through project education and outreach
- Number of employees impacted each year through project education and outreach

The CCNPI Proposed Project Analysis Workbook, available at *www.eere.energy.gov/cleancities/national_parks_application.html*, can be used to help calculate project metrics.

Resources for More Information

The DOE Federal Energy Management Program's (FEMP) Sustainable Federal Fleets website features detailed federal fleet mandate information, including the following resources:

- Legislative and Executive Order descriptions
- Official federal fleet guidance, including the determination of applicable fleets
- Comprehensive Federal Fleet Management Handbook
- Background and resources to support VAM efforts

Fleet, facility, and management staff may also find the following resources to be helpful:

- Presidential Memorandum on Federal Fleet Performance
- GSA Vehicle Allocation Methodology
- NPS Fleet Management Portal