RIGHT JOB, RIGHT VEHICLE

The Right Job Right Vehicle (RJRV) concept matches members of the workforce with the vehicle most appropriate to their daily tasks, improves vehicle efficiency, and uses alternative fuels where logistically and functionally appropriate.

UNDERSTANDING THE WORKFORCE

Understanding the workforce is the first step to RJRV. To select the right vehicle, the following aspects of the job must be defined:

- Average Daily Mileage
- Specific Equipment Carried
- Load Weight
- Job Function

These factors dictate the type of vehicles (sedan, van, truck, SUV) that are suitable for use throughout the workforce. Once vehicle type is selected for a job, make and model selections should be limited within that type. By limiting make and model, ***maintenance efficiencies*** are achieved through economy of scale.

UNDERSTANDING FUEL EFFICIENCY

The next step in RJRV is to improve fuel efficiency where possible. Examine the following areas to identify where improvements can made to the vehicle.

- Reduce Load Weight
- Eliminate Roof Equipment
- Use a Speed Governor
- Reduce Idling RPM

Reduce Load Weight

Reduction in the amount of weight carried makes significant impacts to fuel economy over time. For every 100lbs of equipment a vehicle carries over its curb weight, average fuel mileage is reduced by 0.6%[1]. A vehicle that receives 12 MPG at curb weight drops to 11.7 MPG when carrying 400lbs additional weight. When compounded over 120 thousand miles, that loss of .3 MPG leads to the purchase and consumption of an extra 256 gallons of gas. Apply this extra consumption to an entire fleet of vehicles, and the additional fuel spend compounds quickly.

Eliminate Roof Equipment

When possible, vehicle operators should remove equipment outside the roof of the vehicle. Ladders, layup sticks, signage, etc. can harm vehicle aerodynamics and reduce fuel efficiency. Studies show a loss of 5-40% of MPG, depending on the impact to aerodynamics[2].

Use a Speed Governor

Driving with excessive speed significantly impacts efficiency, and drivers who accelerate beyond their vehicles optimum speed can reduce fuel economy up to 7-14%[3]. To prevent this loss, vehicle computers can be reprogrammed to limit the maximum speed, and various companies offer this capability to fleets of any size. Limiting vehicle speeds to more efficient levels delivers an immediate positive impact to fleet-wide fuel consumption.

Reduce Idling RPM

Just as vehicle computers can be configured to limit maximum speed, they can also be reprogrammed to reduce idling RPM by as much as 30%. An average vehicle will burn 1 gallon of gasoline per hour of idle time, and decreasing engine idle speed significantly reduces the rate at which fuel is consumed.

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[1] *http://large.stanford.edu/courses/2010/ph240/danowitz1*

[2] http://www.sciencedirect.com/science/article/pii/S1877705812047972

[3] https://www.fueleconomy.gov/feg/driveHabits.jsp

UNDERSTANDING ALTERNATIVE FUEL

In many cases, the use of alternative fuel does not make good business sense, and returns on investment will not be favorable for an enterprise. The goal of using alternative fuels should be to select the cleanest possible solution with the least amount of impact on the business and the driver. Alternative fuels or electric options are available both from vehicle manufacturers and companies that perform aftermarket up-fits.

Alternative Energy and Fuels Available

- Compressed Natural Gas (CNG)
- Liquid Petroleum Gas (LPG, Propane)
- LPG/Gasoline Bi-fuel
- CNG/Gasoline Bi-fuel
- Hybrid Gasoline/Electric
- Plug-in Hybrid Gasoline/Electric
- Plug-in Electric

Fuel Tank Size

If cargo space within the vehicle is at a premium, consider the fuel tank size for the alternative fuels available. CNG and LPG up-fits often include an extra fuel tank that use cargo space required for the job type. Without this extra tank, however, the driver will cover fewer miles and need to refuel much more often. Daily requirements of load and mileage, as well as the potential impacts reducing cargo space for additional fuel tanks, must be considered before selecting an alternative fuel to avoid losses in fleet productivity.

Miles Driven on one Fill-Up or Charge

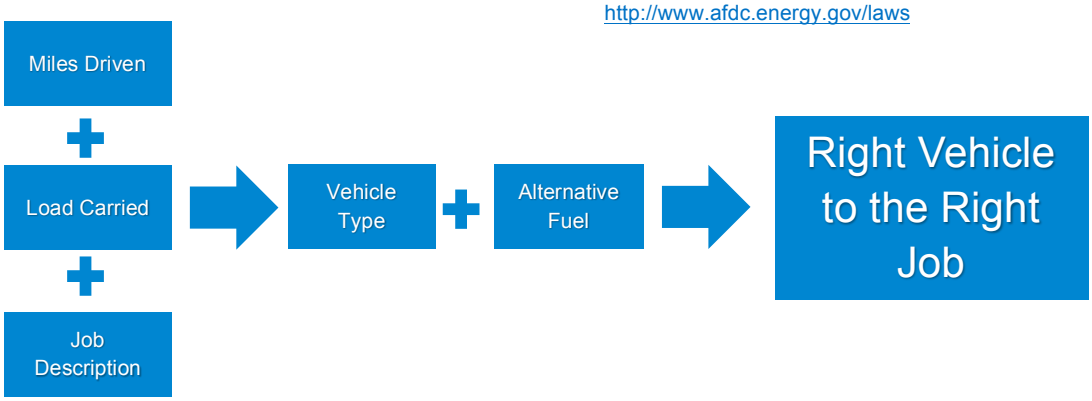
Miles driven between fill-ups should be carefully considered when choosing alternative fuel. Electric drive can be an extremely clean alternative to gasoline or diesel, but switching to an electric fleet is not always the most practical choice. The distance an electric vehicle can travel is relatively short compared to the charge time for the vehicle battery. Similarly, CNG and LPG fuel systems require the installation of an extra tank in order to obtain a range similar to gasoline.

Energy Infrastructure

When considering alternative energy solutions for vehicles, it is crucial to examine existing infrastructure. CNG and LPG fueling stations and electric charging stations are not as common as gasoline and diesel fuel. Considerations should also be made for installing fueling capability for CNG or LPG at the work locations themselves. Fuel prices can be significantly less expensive when using a private fueling station. However, these facilities require significant investment and are subject to permitting. Where fueling infrastructure is limited, bi-fuel solutions should also be considered. Bi-fuels offer a solution that introduces the benefits of alternative fuels while mitigating losses in productivity.

Tax Incentives

Many states offer tax rebates or credits for incorporating alternative fuel vehicles into a fleet. Incentives vary from state to state as do requirements. The U. S. Department of Energy posts current information on state-specific policy at: http://www.afdc.energy.gov/laws



Conclusion: The Right Job, Right Vehicle strategy is comprehensive enough to match the correct vehicle with specific job requirements, maximize vehicle efficiency and organization, and implement the best alternative fuel options. This approach allows an enterprise to make a positive impact on the community and environment while maintaining the highest possible level of productivity.