

Very Light Jet Fueling Systems

Emerging market fuels expansion.

By Gordon Johnson

In 1976, I went to work as an outside salesman for Allan U. Bevier Inc., a Baltimore-based charter member of PEI, whose primary business was the manufacture of fuel oil delivery trucks for customers in Maryland, D.C. and Northern Virginia. Tank truck business was steady, but the real growth opportunity at the time was the conversion of trailers to bottom loading and vapor recovery. Bevier's trailer shops were jammed with transports awaiting API adapters, vents, Scully systems and all the other new and exotic devices that have now become commonplace. For a young and impressionable outside salesman, it was my first experience with a tide of business directly generated by external forces and, like most forces that shape our industry, it was the direct result of government regulation (i.e. Clean Air Act of 1970).



HondaJet's over-the-wing engine-mount reduces drag at high speed to improve fuel efficiency.

The next tide arrived some ten years later as federal UST (Underground Storage Tank) regulations produced a wave of business unlike any seen before in the petroleum equipment business. It would last longer and affect more PEI distributors than any other government regulation or market force had ever done before. The removal and replacement of thousands of leaking underground storage tanks would enable PEI manufacturers, distributors and installers to participate in a flood of business estimated by some in the hundreds of millions of dollars. Environmental remediation became a legitimate business activity and not just an industry buzzword.

In the 20-odd years that have intervened since the federal UST guidelines were priming the revenue pump, business has generally been stable for most PEI firms, but it has lacked the impetus of a wave of business stimulated by government regulation or extraordinary market forces. That may be about to change.

New Jet Brings Opportunity

On September 3, 2006, a small manufacturer by the name of Eclipse Aviation in Albuquerque, New Mexico, received FAA certification for one of the first Very Light Jets (VLJs). Very Light Jets (previously called "microjets") are small jet aircraft approved for single pilot operation that seat four to eight people with a maximum take-off weight of 10,000 pounds. Most significantly, VLJs are able to operate from runways as short as 3,000 feet. This will make many small airports immediate candidates for Very Light Jet service even though their runways are too short for regular business jets. Eclipse Aviation CEO Vern Rayburn was one of the first executives at Microsoft and, as a result, Bill Gates is one of Eclipse's largest investors and shareholders.

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At present, there are over 3,000 orders on the books for Very Light Jets from just three manufacturers (Eclipse Aviation, Cessna Aviation in Wichita, Kansas; and Adam Aircraft in Denver, Colorado). The majority of these aircraft are expected to be used in point-to-point air taxi service. Moreover, the FAA expects that over 5,000 Very Light Jets will be in the air within the next five to six years.

In fact, Florida-based air taxi service DayJet plans to operate more than 1,000 VLJs within the next five years. DayJet Air Taxi

service began last year in Florida and is currently serving seven central Florida cities. DayJet CEO Ed Iacobucci (founder of software company Citrix Systems) offers something not previously affordable for most business travelers—direct flights to and from mid-sized markets that are scheduled when and where the passenger wants to go. Based on a business model that relies on cutting-edge computer software, DayJet's proposition is simple—air travel on a per-seat, on-demand basis. DayJet is one of 15 members of the Air Taxi Association, which is made up of "next generation" operators utilizing high-tech small aircraft and low-price business models. The Air Taxi Association expects its membership to swell to 45 by the end of 2008.

The potential opportunity for PEI members is compelling. Hundreds of small airports across the United States that could conceivably support Very Light Jets are currently equipped only with avgas fueling facilities. In order to support future VLJ traffic, these airports will need to be outfitted with jet fuel storage tanks and dispensing systems. Initial systems may be small in size considering the limited fuel capacity of VLJs, but over time, growth could fuel demand for additional, larger jet fuel storage and dispensing systems.

Characteristics of Jet Fuel

Due to the unique characteristics of jet fuel and industry fuel quality standards such as ATA 103, all VLJ fueling systems need to be equipped with the following features:

1. **Inbound Filtration:** Jet fuel must be filtered into storage.
2. **Product Recirculation:** Stored product must be recirculated through filtration on a regular basis to remove water and particulates.
3. **Outbound Filtration:** All dispensed fuel must undergo final filtration prior to introduction into the aircraft.
4. **Storage Tanks:** All jet fuel storage tanks must be lined with a tank lining designed specifically for Jet Fuel. Floating suctions are also required for Jet Fuel.
5. **Filter Type:** Jet fuel premixed with FSII (Fuel System Icing Inhibitor) can no longer be filtered by water-absorbing filter/monitors; it must be filtered by more expensive coalescer/separators designed specifically for aviation fuel. A variety of water defense systems (hydraulic & electronic) are required for use with coalescer/separators in jet fuel service.



Very Light Jets are small jet aircraft approved for single pilot operation that seat four to eight people with a maximum take-off weight of 10,000 pounds. These jets operate from runways as short as 3,000 feet, making many small airports immediate candidates for service. Many of these small airports are currently equipped only with avgas fueling facilities and will need to be outfitted with jet fuel storage tanks and dispensing systems.

Expertise Required

Aviation refueling is a highly specialized discipline that, while sharing some of the products used in the transfer and dispensing of motor fuels such as pumps, meters, hoses and nozzles, is highly regulated and defined by a number of industry standards such as ATA 103, NFPA 407, API 1581, API 1529 and others. Technological and fuel quality issues require full-time specialization or a highly reliable aircraft refueling system supplier who can guide you through the maze of issues relating to both technical and regulatory compliance.

Liability Issues

In the aftermath of 9/11, insurance coverage for aviation refueling system manufacturers has become more costly and more difficult to obtain. Without a solid track record of experience or successful installation base, most insurers have little interest in betting on a novice. In selecting a supplier of aircraft refueling systems, not only should you review the supplier's list of installed jobs and photos of systems delivered, but you should also insist on being named as an "additional insured" on the supplier's Certificate of Insurance. A reputable system supplier should have no objection to such a request. Building your own aircraft refueling system may appear deceptively simple in some cases, but after consulting with your insurance agent, you may come to the conclusion that it is better left to a company that specializes in such activities.



Business Model

Site prep, concrete pads, electrical work, storage tanks, tank fittings and accessories, piping, and permits are areas of activity most PEI firms are exceedingly comfortable in handling. To meet the needs of the VLJ market, the primary missing link is the jet fueling module, which consists of an open skid or aluminum cabinet enclosed

system. There are numerous suppliers of turnkey systems, which consist of the tank, tank accessories and fueling module on a single skid delivered to the job site. Other than pouring a pad and running a power line, there is little room for a PEI firm to provide value-added services. By contrast, suppliers that limit their scope of supply to the jet fueling module only encourages PEI partners to provide the Jet Fuel Storage Tanks, tank fittings, floating suction, tank monitoring systems, site prep, installation and final inter-connecting piping between the aircraft refueling system modules and the storage tank. This participatory arrangement ensures maximum value-added content for the PEI member while receiving the benefit of the supplier's technical expertise and vendor liability insurance protection as an "additional insured."

Seize New Opportunities

The business of PEI member companies is constantly evolving, and those companies which successfully seize new opportunities that match their capabilities and resources while minimizing their risk and exposure will be those that will enjoy the most growth and profitability. Whether the Very Light Jet wave is a tsunami or a disappointing ripple matters less than the willingness of PEI members to keep paddling and maintain an eye out for the next wave on the horizon.



Meet The Author

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This article may be viewed at: <http://www.thepeijournal.org/content/2q08/ee-lightjetfueling.php>

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