Propane Offers A Promising

Content and photo contributions Mark Linkletter, Ferrellgas

Golf Course maintenance crews can now power their mowers using a fuel that's as green as the grass they're cutting.

That fuel is propane, a product that's been powering gas-burning appliances at rural homes, farms, and businesses for decades. Found in both crude oil and natural gas, propane burns cleanly, especially when compared to gasoline and diesel fuel. In fact, propane, which is approved under the Energy Policy Act of 1992 for use by federal and state fleets as an alternative fuel, has an octane rating of 104 to 107 and allows for a higher compression ratio, enabling a propane engine to run just as powerfully and more efficiently than with gasoline, which has an octane ratio between 87 and 93. As a result, propane-fueled vehicles can meet the very tough Ultra-Low Emission Vehicle (ULEV) standards.

Lower emission costs

Alternative Part I

Propane's higher octane level, higher compression ratios, and closed systems, while being environmentally friendly, have another benefit—they lower maintenance costs.

Tests have shown that oil, oil filters, spark plugs, carburetors, and engines in propane-powered equipment last up to three times longer than gasoline-powered equivalents, and that during the lifespan of that equipment, fewer tune-ups are required. At present, new propane mowers can be slightly more expensive than traditional gasoline equipment, but lower fuel and maintenance costs over the lifetime of the equipment more than balance the equation.

Lower fuel costs

For most grounds maintenance applications, propane is either delivered and stored in bulk tanks on site or delivered in ready-to-mount mower cylinders that are re-filled by the supplier after use. Either way,

there is a significant cost savings over gasoline. Overall, the price of propane compares favorably with the price of conventional or reformulated gasoline, historically running at under (75%) of retail costs. Many states offer fuel tax incentives or alternative fuel benefits to encourage the use of propane, helping to further increase fuel savings.

Another center of expense—fuel shrinkage—is virtually eliminated in a transition to propane. Propane is, at present, not a common fuel for cars and trucks and is less vulnerable to theft in the field and on site. Also, because of propane's closed storage and delivery systems, fuel budget losses due to loss, evaporation, spillage, and theft, as well as contamination from rain, dirt, and other contaminates, are essentially eliminated.

Environmental benefits

A number of states across the union are either eyeing or actively pursuing legislation to cut the emissions of mower fleets owned by the state or its institutions. This, coupled with heightened senses of environmental and fiscal awareness at every level of business and education, bring new attention to clean-burning and economical propane as a fuel.

It is well known that gasoline engines on grounds maintenance equipment, in particular, emit high levels of carbon monoxide, volatile organic compounds, and nitrogen oxides. Those engines produce, on average, 5% of the nation's air pollution, a number that can be significantly higher in metropolitan

areas. Emissions are so low that propane mowers can be used during "Ozone Action Days"—days deemed by cities or states as especially likely to foster the production of ozone—when the use of gasoline-powered engines is either prohibited or discouraged.

Propane-fueled equipment has minimal emissions. Studies indicate that smog-forming hydrocarbons are lowered 60% to 70% in propane-fueled engines vs. gasoline, along with 12% less carbon dioxide, 20% less nitrous oxide, and 60% less carbon monoxide. Toxins and carcinogens such as benzene and toluene are eliminated almost entirely as well, seeing 96% reduction in their level.

Gasoline, in addition to being a heavy post-burn pollutant, is a spillage and evaporation hazard. While propane is a gas in its uncompressed state, it is stored as a liquid. "Closed" storage and delivery systems, meaning airtight systems that keep propane in its compressed, liquid state, prevent leaking and evaporative emissions by their nature—effectively removing spillage hazards from your environment. Should a leak develop in the system, propane escapes. As a non-toxic gas, the environmental impact is minimal.

Propane tanks are also safer to have at your facility, having been rated at up to 20 times more puncture-resistant than gasoline tanks. On the whole, propane is a safer, more environmentally sound option than conventional or reformulated gasoline. Propane

Photo credit Chris Carpenter, UofM

has been referred to for years as an alternative fuel, but when it comes to powering mowers, there may be no better alternative.

Mark Linkletter is Mower Fuels Sales Manager for Ferrellgas, a nationwide propane company headquartered in Overland Park, Kansas. Find out more at www.ferrellgas.com and www.ferrellautogas.com.