

Wilmington International Airport – Riding Mower Replacements

Case Study Follow-up visit on 7-29-14

NC DENR, Division of Air Quality



The Wilmington International Airport's two new 2013 Ventrac 4000 front mount mowers have helped reduce impact to the environment as well as reduce operation costs.

Site Overview

The Wilmington International Airport (ILM), located just north of Wilmington in Wrightsboro, NC, serves as the primary airport for southeast North Carolina. The airport owns and operates two runways and offers many non-stop flights to popular destinations within the US. Serving roughly 800,000 passengers per year, ILM prides itself on its convenient flight options, ease of use and friendly staff.

The Mowers

ILM consists of 2,000 acres of property and, having been built on a swamp, requires an extensive and precise mowing operation. For example, the grass on the property must be between 6-15" to deter wildlife from living on the property and interfering with airport functions. Thus, from April to October, ILM's Ventrac 4000 mowers will run between five and seven hours a day for five to seven days a week. The mowers' tanks are refueled via the Eastern Rulane propane station that was purchased and installed on the airport grounds.

Implementation

In 2012, ILM was awarded a Diesel Emission Reduction Grant (DERG) that went toward the purchase of two 2013 Ventrac 4000 front mount mowers. They each contain Tier 4-rated Kawasaki Kubota engines that run exclusively on propane. They replaced two 2005 Ventrac 4000 front mount mowers which had Tier 2-rated Vanguard Turbo Diesel DM950DT engines. Together, the two new mowers have led to the following improvements and benefits:

- A 40 percent reduction in fuel costs.
- Decreased maintenance costs and repairs due to cleaner internal combustion.
- The new mowers produce less exhaust fumes and operate quieter.
- Fewer instances where employees experience eye irritation, headaches, fatigue and general discomfort after switching from diesel.
- ILM has received the Green Plus Nonprofit of the Year award which recognizes 501c3 organizations, academic institutions, or units of government that have exhibited creative triple bottom line leadership. They were the first airport to take part in the Green Plus Program.
- ILM was the first organization in the Wilmington area to achieve full Green Plus certification.
- Conducted a television interview with News 14 Carolina about the propane mowers and its efforts to "go green."

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Adjustments and Conclusion

The Wilmington International Airport did not encounter any major problems related to the grant process and managed to stay within their original project budget. However, there was some extra time and effort devoted to negotiating the final price of the mowers with the manufacture. Despite that small inconvenience, PTI still met all of their timelines and would highly recommend this type of project to state and national airports. With their budget allowing, ILM would love to expand its propane usage to all of its grounds vehicles for additional savings and a continued reduction of diesel emissions.



The propane mowers (above) come with two propane tanks for added convenience and to reduce refill time. When needed, the tanks are filled at the on-site filling station (below).

"We're looking at about a one-and-a-half to two years pay back. So it's worth it for the environment."

- Whitney Prease, Facilities Director



Emission Reductions

Nitrogen Oxides (tons/yr)	Fine Particulate Matter (tons/yr)	Carbon Monoxide (tons/yr)
0.3640	0.0493	0.8453

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