

## Clean Fuel Advanced Technology Success Story: Charlotte-Douglas International Airport

### Project

A total of \$2M in funding was provided to the NC Solar Center at NC State University by the NC Department of Transportation, State Energy Office and Division of Air Quality for the Clean Fuel Advanced Technology Project to reduce transportation-related emission in NC counties that do not meet national air quality standards. The Charlotte-Douglas International Airport received \$40,000 to purchase two “series hybrid” electric buses.

### On the Road to Success:

- The buses are manufactured by DesignLine and are powered by a unique drive train that operates exclusively on battery power. Batteries are recharged by a small diesel engine, an approach that reduces emissions and offers significant fuel savings.
- This system has a “zero-emission” mode, which allows the bus to utilize battery power for a minimum of 25% of the day without releasing emissions into the air. The benefit of this system is that it allows the bus to stop and start without using a lot of the power, and the act of braking recharges the battery.
- In 2006, the Airport was utilized by 30 million passengers, including over 4 million that originated or ended their journey in Charlotte. Each bus carries approximately 620,000 riders in any one-year period.
- With this project, CLT was the first airport in the United States to utilize the “series hybrid” electric bus and hopes to be a leader in pursuing emissions-reducing technologies.
- DesignLine USA has recently opened a manufacturing plant in Charlotte NC where they are making hybrid buses and are also set up for producing all electric buses.



### CFAT Impact by the numbers

DesignLine buses average 6-10 mpg, (compared to 3 mpg with standard diesel buses)

10,786 gallon reduction in petroleum annually

### Additional Accomplishments

The Airport is currently researching the use of electric golf carts by parking staff, using bio-diesel fuel for airport equipment, and is looking into different types of transmissions for the smaller buses. The Airport has also recently purchased a Ford Escape Hybrid to be used by engineering staff.

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