

Grant Deliverables and Reporting Requirements for UTC Grants

UTC Project Information	
Project Title	100% Biodiesel Vector Technology and Fuel Dispensing Solution — A CTECH live lab pilot project for the implementation and evaluation of the 100% biodiesel technology on identified equipment within Cornell’s fleet operations
University	Cornell University
Principal Investigator	H. Oliver Gao
PI Contact Information	hg55@cornell.edu 607-254-8334
Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT: \$2,000 Donor: \$22,000
Total Project Cost	\$24,000
Agency ID or Contract Number	Sponsor Source: Federal Government CFDA #: 20.701 Agreement ID: 69A3551747119
Start and End Dates	■ Start date: 09/01/2017 ■ End date: 09/30/2020
Brief Description of Research Project	<p>CTECH has partnered with a student project team to create a project that provided hands-on experience to student engineers in sustainable transportation.</p> <p>Optimus, Inc., CTECH, and the biofuels group from Engineers for a Sustainable World (ESW) met with Cornell Farm Services to identify three potential pieces of equipment within Cornell’s fleet operations which are ideal candidates for the implementation and evaluation of the 100% biodiesel technology, one of which was selected to serve as the pilot vehicle.</p> <p>Project Goals</p> <ul style="list-style-type: none"> • Validate the Optimus biodiesel fuel system technology and the use of 100% biodiesel within Cornell’s operations assisting the University in achieving its “plan to reach carbon neutrality by 2035 through innovation, leadership, and campus excellence.” • Quantify the reduction in fleet greenhouse gas emissions for project vehicles (75%+ reduction projected) and

	<p>perform an analysis of overall applicability of the technology to various other use cases on campus.</p> <ul style="list-style-type: none"> • Facilitate reduced fleet fuel costs through utilization of domestically produced, renewable, low-carbon biodiesel. • Provide the students with direct engagement and real-world experience by participating as project engineers on the biodiesel fuel system technology project development and deployment.
<p>Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here</p>	<ul style="list-style-type: none"> • Increased hands-on engineering experience for ESW Biofuels members • Improved understanding of Optimus' VS technology • Developed understanding of Cornell's transportation needs and of the requirements a vehicle must meet to operate in cold winter climates • Deepened understanding of biodiesel's merits and limitations
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<ul style="list-style-type: none"> • Enlarged the pool of undergraduate Cornell students trained to operate and troubleshoot the VS • Improved the information resources available to Cornell and CTECH with regards to VS and biodiesel implementation • Contributed to the scientific body of knowledge on the operability of the VS on off-road vehicles in cold winter climates • Provided ESW Biofuels members with the ability to construct and understand industry standard Life Cycle Analyses (LCA) • Provided ESW Biofuels members with the skills necessary to operate the Argonne Labs GREET LCA tool
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project website 	<p>http://ctech.cee.cornell.edu/final-project-reports/</p>