

Eco-Industrial Biodiesel Manufacturing

- Co-generation from landfill gas to supply building and process heat
- 150 acres of agricultural land on buffer areas of EcoComplex grow high yielding oilseed crops, canola, sunflower, and soybeans.
- Oilseed processing facility on-site to produce semi-refined vegetable oil and protein meal for local livestock farmers
- Multi-feedstock facility capable of processing semi-refined vegetable oils, recycled oils, and animal fats
- Modular testing environment for researching distinct process parameters
- Biodiesel fuel tested and consumed on-site in off road landfill equipment
- By-products research & testing for future uses including glycerin upgrading and co-product development

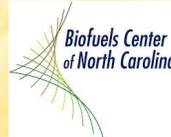


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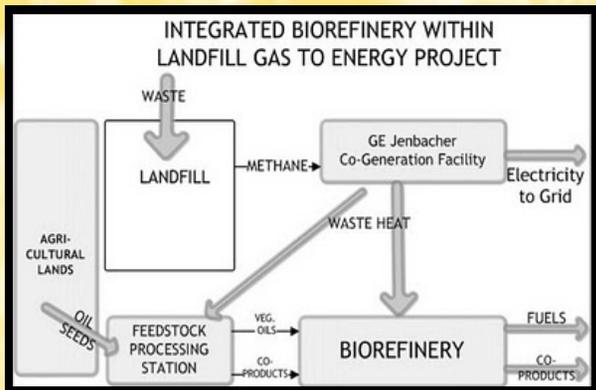
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Contributing Partners



BIODIESEL FACILITY

RESEARCH, TESTING &
 PRODUCTION AT THE
 CATAWBA COUNTY
 ECOCOMPLEX





CATAWBA COUNTY ECO-COMPLEX & RESOURCE RECOVERY FACILITY:

- Ecological-industrial park
- Cooperative waste and resource management, renewable energy production, and local economic development through public private partnerships
- 805 acre site centered on the Blackburn Landfill
- 452 tons/day of municipal and 88 tons of construction waste daily
- 3MW grid-tied Landfill Gas to Energy GE-Jenbacher engines



THE BIODIESEL RESEARCH AND TESTING FACILITY:

Catawba County has partnered with Appalachian State University (ASU) to create a center for biodiesel research and testing. ASU's research includes modular processing and testing of biodiesel fuel made from multiple feedstocks and analysis of growing and processing oilseed crops around the landfill to determine which are most effective and efficient as a biodiesel and value-added feedstock. Currently, canola, sunflowers, and soybeans are being grown and tested.



INITIATIVE OBJECTIVES:

- Increase economic development of both the agriculture and biofuel sectors in North Carolina
- Experiment with the production of North Carolina's specific, high oil content crops for use as feedstocks by local biodiesel producers
- Construct a comprehensive modular biodiesel fuel testing facility that will provide essential data to biodiesel producers and users in NC



- Experiment with different processing elements to determine which components provide the best overall production performance, fuel quality, and emissions
- Expand ASU's current biofuels crop research efforts, including: planting and harvesting, collection of seed yield data, and the measurement of oil yields from each of the various viable crops
- Develop and implement accurate, practical, and sustainable biodiesel combustion and emissions testing protocol for fuels produced by the facility from various test feedstocks
- Using a SEMTEC DS mobile emissions analyzer in our test vehicle, a 2006 Volkswagen TDI, we are able to test neat fuels as well as blends by feedstock. This unit measures nitrogen oxides, sulfur oxides, carbon monoxide, carbon dioxide and total hydrocarbons using flame ionization and mass spectrometer analysis. Our facility includes a dynamometer for stationary testing of light and medium duty vehicles. This emissions component will further the work of quantifying biofuel carbon footprint.