

Jackson County Green Energy Park – Tour Info Sheet

JCGEP Mission Statement

“The Jackson County Green Energy Park utilizes clean, renewable energy resources to encourage economic development, provide environmental protection, and offer educational opportunities that together will help lead towards a more sustainable future for western North Carolina.”

<p><u>Project Overview</u> Captures methane gas from the old Dillsboro landfill for use as a fuel.</p> <p>Uses renewable fuels to provide process heat for:</p> <ul style="list-style-type: none"> ♦ Blacksmith forges ♦ Metal foundry ♦ Glassblowing studios ♦ Pottery kiln (wood-fired and soda-fired) ♦ Flameworking torches 	<p><u>Metals Studio</u></p> <ul style="list-style-type: none"> ♦ Only blacksmith forges and foundry in the world fired using landfill gas. ♦ High temperatures reached to date – 2383° F. ♦ Facility designed and built by master smith William Rogers. ♦ Studio rental entitles tenants to use of all equipment and free gas. ♦ Metal pours conducted in partnership with WCU Sculpture Dept. 	<p><u>Glassblowing Studio</u></p> <ul style="list-style-type: none"> ♦ The only operating glass studio fired with landfill gas. ♦ Hot shop for working hot glass. Cold shop for final stages of polishing, cutting, and sandblasting glass work. ♦ Glory holes and garage are gas-fired. Furnace operates on electric. ♦ Nearly all hot and cold shop equipment purchased used for 10% of its original value. ♦ Glass shop designed by Glass Art Society board member Tracy Kirchmann.
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<p><u>Pottery Kiln</u></p> <ul style="list-style-type: none"> ♦ Anagama-style kiln is fired using wood and waste vegetable oil as fuels. ♦ Kiln designed by WCU alumni Preston Tolbert. ♦ Kiln constructed by WCU staff, students, and alumni. ♦ Kiln is available for rent, and is open for use by the public. ♦ 100 cubic foot kiln, with 70 ft³ main chamber and 30 ft³ soda chamber. ♦ Waste vegetable oil (WVO) used as fuel for soda chamber. ♦ Energy content of WVO vs. gasoline: <ul style="list-style-type: none"> ○ WVO: 33.2 mega joules per liter. ○ Gasoline: 32.9 mega joules per liter. ♦ WVO collected from local restaurant (Lulu’s). ♦ Able to reach temperatures of 2200°F on WVO alone. ♦ Removes WVO from waste stream and protects water quality. ♦ WVO is non-toxic, safe to transport and it smells like French fries, as opposed to fossil fuels. 	<p><u>Project Development</u></p> <ul style="list-style-type: none"> ♦ In 2016, construction begins on our ceramics facility and rental studio spaces. ♦ Facility will have four to six spaces for ceramicists to work at once. ♦ All studio equipment – including gas and electric kilns – available for public rental. ♦ Twelve to fourteen open studio spaces available for rental. ♦ Larger gallery combined with welcome desk and office space. ♦ Educational facility available for holding other art related classes and conferences. ♦ Public pottery classes will be offered.
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<p><u>Project Background</u></p> <ul style="list-style-type: none"> ♦ Dillsboro landfill closed in 1999, with roughly 750,000 tons of trash in place. ♦ Concerns over methane migration prompted County to examine LFG capture. ♦ County re-purchased property and buildings adjacent to the landfill. ♦ Gas wells installed March 2005. ♦ Project construction began October 2005. 	<p><u>Youth Arts Festival (YAF)</u></p> <ul style="list-style-type: none"> ♦ Annual art festival (9th year coming up), free of charge to public. Over 1,000 attendees in past years. ♦ Over 35 artists participate each year. ♦ All artists demonstrate their crafts, and/or provide hands-on activities for the kids (not just sell stuff). ♦ Kids built mosaic tile wall, and painted large murals. Children now are coming back with school tours, and pointing out work that they did during the YAF. ♦ People from all over western North Carolina travel to participate in our YAF.
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<p><u>Funding</u></p> <ul style="list-style-type: none"> ♦ NC State Energy Office - \$75k ♦ USDA Rural Enterprise - \$80k ♦ NC Rural Center - \$120k ♦ Appl. Regional Commission - \$70k ♦ Golden Leaf Foundation - \$237k ♦ Handmade in America - \$27k ♦ Resourceful Communities - \$50k ♦ Jackson County contributions to date: \$1.8 million. 	<p><u>Gas Supply</u></p> <ul style="list-style-type: none"> ♦ Landfill size – 9 acres ♦ # of gas extraction wells - 13 ♦ Average gas flow - 50 cubic feet per minute ♦ Methane content - 58% - 70% ♦ Heat value - 1.5 Million Btu/hr <ul style="list-style-type: none"> ○ 1 Btu = Heat of 1 kitchen match ○ Average residential gas furnace = 60,000 Btu/hr ○ LFG resource = 25 gas furnaces burning continuously 	<p><u>Economics</u></p> <ul style="list-style-type: none"> ♦ Encourage the success of new artisans ♦ Fully-functional studios available for rent ♦ Cost-free fuel ♦ Develop real business skills ♦ 10 – 20 new job opportunities created once project completed, with continued turnover of artisans. ♦ Increased eco-tourism and heritage crafts tourism. Several thousand visitors to date, including guests from 15 foreign countries
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<p><u>Site Clean-up</u></p> <ul style="list-style-type: none"> ♦ GEP site had been used as a recycling center and trash transfer station. Once abandoned, it had accumulated many years' worth of salvaged materials and junk. ♦ Removed over 550 tons (over 1,000,000 pounds) of trash and debris from site. ♦ Crafts building was full of junk, in terrible disrepair, with no interior walls or utilities. ♦ Transformed public eyesore into an award winning artisans complex. 	<p><u>Environment</u></p> <ul style="list-style-type: none"> ♦ Jackson County required to manage landfill gas. ♦ Capturing the gas prevents methane from escaping into the environment. ♦ Methane is 24 times worse than CO₂ in terms of greenhouse gas effect. ♦ Removes odors caused by leaking landfill gas. ♦ Prevented 2,000 tons of methane from entering environment, to date. ♦ Yearly Environmental Benefits equivalent to: <ul style="list-style-type: none"> ○ Removing 916 vehicles off the road. ○ Planting 1,305 acres of forest.
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