

Use of Abundant Renewable Forest and Sawmill Residual and Tire-Derived Fuels for Empowering Forest-Rich Communities to Lift Themselves from Chronic Poverty and Income Inequity:

A Forest-Based Philanthropic Model for Sustainable Community Change Proposed Jefferson Renewable Energy Facility (JRE) Jefferson County, Georgia

Background

In 2012, Jefferson County, Georgia, had approximately 16,400 residents, 81% of those residents living in rural areas, and 56% of those residents being African American, 28% live in poverty, and nearly 17% are jobless. The town of Wadley had 2,009 residents in 2012, all living in 100% rural conditions, and 74% of those residents being African American. The median household income in Wadley was \$16,116, with estimated per capita income in 2011 of \$9,329, and an unemployment rate of nearly 17%, with almost 49% of the residents living in poverty (<http://www.city-data.com/city/Wadley-Georgia.html>, accessed 1-27-14). Jefferson County is a USDA-designated StrikeForce county.

The US Endowment for Forestry and Communities (www.usendowment.org) sought out a community across the one-third of America covered in forests where the Endowment could meet its mission of partnering collaboratively with public and private entities to advance systemic, transformative and sustainable change for the health and vitality of working forests as the basis of improving communities reliant on those forests for their well-being. The Endowment is a not-for profit public charity established in 2006 at the request of the US and Canadian governments for using forests as levers for community improvements.



The project met several goals of the Development Authority of Jefferson County, including improving the economy of the county through increasing job opportunities and capital investment for improving the tax foundation, recruiting new and assisting in the expansion of existing industry to further its goals, and accessing and protecting our natural resources.

Seventy-five percent of Jefferson County is blanketed in forests growing at twice the rate of annual wood harvested from those forests. The Endowment created a for-profit corporation named Community Wealth through Forestry (CWF) which proposes constructing and operating a 25 MW biomass plant fueled by non-commercial waste wood from timber and sawmill operations and shredded shredded disposed tire products (TDF) for:

- Generating a profit, of which 100% of CWF's net profits will be provided to the community for investment in economic and social improvements, potentially representing several millions of dollars to address social and economic issues above the approximately \$5 million/year for payroll taxes, and purchases of raw materials from

local commercial enterprises, with investment projects and programs developed and selected by an independent board of five directors (four of whom are Georgia residents, including two from Jefferson County), working with the community;

- Grey water effluent from the City of Wadley wastewater treatment facility will be used within a closed-loop design for cooling the water condensed from steam generated from the fluidized bed system after it has run through the steam turbine. This process allows the City to recycle its grey water discharge so that it increases the capacity of its wastewater treatment facility, which currently has insufficient capacity to meet requirements, resulting in periodic Notices of Violation from the Environmental Protection Agency;
- Contributing electrical power to the Georgia Power electrical grid using green renewable energy under an existing 20- year Power Purchase Agreement, for profit; and
- Creating up to 200 direct construction jobs, 25 direct on-site family supporting jobs, as well as 50 indirect jobs in transportation and supply in Wadley, Jefferson County, and the surrounding area for construction and operation of the facility, as well as indirect jobs in support of these actions, and an expanded tax base supporting additional sustainable economic development.

Since inception of this concept, CWF/Endowment has intentionally and repeatedly reached out to elected and civic leaders and broadly to the community, including using a facilitated “volunteer listening committee” of 15 citizens representative of the makeup of the community to share information and solicit the input, ideas, and dreams from across the county. The Endowment and CWF/Endowment placed few restrictions on proposed approaches for investment of net profits from the JRE except that investments and uses must be focused on and address underlying causes of poverty and income inequities. Among ideas that have generated strong interest during more than 25 community meetings and presentations, listening sessions, and a Family Assets EXPO includes families investing in a child savings account for the future advanced education of their children, with savings funds matched by CWF and collaborations with local technical colleges for providing technical training to local young adults aimed at needed skills in industry in the county (including at the JRE).

The Endowment’s investment and partnerships in the City of Wadley and in Jefferson County, Georgia will bring long-lasting change to an aspiring but poor rural county by using its abundant forest assets to support renewable energy-based economic development and at least 20 years of philanthropic support to reduce income inequality and move families and communities out of chronic poverty for the long-term. The Endowment also intends that this unique project will be a model for use in other forest-rich, economically depressed, and philanthropically-deprived rural communities. The Endowment retains an interest in the facility via its wholly-owned for-profit subsidiary, Community Wealth through Forestry (CWF).

Project Description

After review of opportunities in multiple counties in Georgia, one of two sites identified as available and meeting its criteria by the Development Authority of Jefferson County was selected. This site was approximately 3 miles west of Louisville on SR 171 and had many positive amenities and assets; however, the difficulty of connecting the energy plant to the existing Georgia Power transmission line made the site unacceptable. The other site identified for the Jefferson Renewable Energy plant, an approximately 25-acre site in an existing but undeveloped county-designated industrial park just west of Wadley located on US Highway 319 between

Wadley and Bartow was then selected. This is the current site for the proposed renewable energy plant. The Development Authority has plans for this project to be the anchor for other projects in the park. The industrial park is bordered by three transmission lines in a cleared right-of-way on the eastern boundary, active railroad tracks on the southern boundary, and US Highway 319 on the northern boundary. The western boundary is forested.

Green energy produced by the plant will be purchased by the Georgia Power Company (GPC) under a 20-year Power Purchase Agreement and transmitted from the plant via a substation constructed per specification by the power company to its existing 115 KV transmission line bordering the site. The facility will be fueled on a 24/7 basis by a mix of no less than 80% residual wood products from forest harvests and area sawmills, supplemented by no more than 20% TDF. JRE has obtained all permits needed to proceed with construction, including all air quality permits that ensure that air quality will not be impaired. JRE is committed to continuous air quality monitoring, and fully compliant air and water pollution prevention equipment is incorporated into the plant design.

In addition to considering private capital markets for financing, CWF/Endowment has elected to also apply for loan financing through the USDA Rural Utilities Service (RUS). In order to meet IRS requirements for Investment Tax Credits based on existing legislation, development work on the site had to commence before December 31, 2013 or lose \$17 million in credits, which would have destroyed the opportunity for the project to move forward. CWF/Endowment identified the minimum actions that would meet the legislative requirements, involving grading, mulching, silt fencing, creating temporary storm water retention ponds, and constructing a small concrete pad for a future water storage tower as part of Phase I development. In order to comply with the National Environmental Policy Act (NEPA), in RUS' approach to CWF/Endowment, RUS recommended that CWF/Endowment voluntarily cease RUS construction until an Environmental Assessment is completed. CWF/Endowment took the additional step of voluntarily initiating the Environmental Assessment per NEPA in the prospect of submitting a formal application for financial assistance to RUS.

The site is relatively flat, with suitable well-drained soils for industrial development. No development would occur in either wetlands or floodplains. The site has been farmed for cotton or tree plantations for over 100 years, and all trees have been removed from the site. Currently, a narrow one-lane gravel access road accesses the site from US Highway 319. The Development Authority will improve the road access and ensure utilities are provided to the site at the appropriate time. Permanent storm water retention ponds designed to a 25-year rainfall event, and soil protection will be installed on site.



The proposed biomass plant would contain a 25-MW fluid bed boiler capable of burning wood and waste tire pellets (21 MW are available for sale to Georgia Power Company; the remaining 4 MW would be used by the facility for operation and maintenance), with an intended 30-year life span. In addition to the boiler equipment within the fenced site, major facility components include the truck weighing and unloading areas, wood and TDF

storage yard with fire protection and hydrants, powerhouse, step-up transformer, auxiliary transformer, cooling tower, ash silo, exhaust stack, and water storage and handling facilities.

Delivery of wood and TDF would be by trailer truck accessed via US Highway 319, with up to 50 trucks per day adding to the existing vehicular load of 2,100 vehicles per day. An additional approximately 2 to 3 trucks per day would remove the ash for disposal in local landfills. Approximately 265,000 tons of wood fuel (when used at 100% of fuel) or approximately 141,000 tons of wood fuel (when used at 80% of fuel), or 36,000 tons of TDF (20% fuel) would be required every year to operate the plant to provide base power 24/7.

Municipal water would be used for on-site potable purposes. On-site wells will be used for boiler make-up and fire suppression. The City of Wadley would provide water and sewer utilities through construction of new pipelines within existing road, highway, and powerline rights-of-way. Non-contact cooling water would be provided by grey water from the Wadley wastewater treatment facility, which is periodically over capacity, supplied to the site in new pipes within the same rights-of-way used for the utilities. Minimal water would be returned to the wastewater treatment facility, reducing the water processed by the treatment facility and reducing the periodic overcapacity violation situation and the associated need for costly renovations to the facility.



Environmental Consultations and Compliance

JRE has obtained all permits needed to proceed with construction, including air quality permits that ensure that air quality will be protected. JRE is committed to full air quality monitoring, and air and water pollution prevention equipment is incorporated into the plant design.

Wastewater will be treated at the City of Wadley wastewater treatment facility; all residues (ash, air pollution control residues, and non-hazardous solids) will be disposed of at the county landfill. No construction or site disturbance would occur in wetlands or 100-year floodplains. JRE has also committed to placing an air quality monitoring site, monitored by an independent third party, at the local school two miles from the site, and additional pollution prevention equipment is integrated into the plant design.

Consultations with the following state and federal agencies are ongoing:

- US Fish and Wildlife Service for potential impacts on federally threatened and endangered species (Endangered Species Act)
- Georgia Department of Natural Resources for potential impacts on state protected species (Georgia endangered species act)
- State Historic Preservation Officer, Georgia Department of Natural Resources for potential impacts on cultural and historic resources (National Historic Preservation Act)
- Rural Utilities Service for NEPA compliance, public involvement, and any necessary Tribal consultations (National Environmental Policy Act)