

ENVIRONMENTAL ASSESSMENT

PLANT CARL CARNESVILLE, GEORGIA

A Distributed Generation Proposal by
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1.0 Project Description

This Environmental Report describes potential environmental impacts associated with the construction, operation, and maintenance of Plant Carl, a 20-megawatt electric power generation plant proposed to be built by Earth Resources, Inc. (ERI) in Franklin County, Georgia (Figure 5.1, USGS Topographic Maps). The project will be sited on a previously graded five acre portion of a 139-acre property, which will include the generation plant and accessory structures, fuel storage and handling areas, traffic circulation and parking areas, waste holding areas, and stormwater management features. Approximately ten additional acres will be devoted to a spray application water treatment system for which no new clearing and grading will be required. The remaining acres will be maintained as natural area buffers. The site is shown in the following photographs.





ERI, a Georgia-based corporation focused on waste-to-clean-energy projects and a Federal Energy Regulatory Commission (FERC) certified 'Qualified Facility' (QF-03-1-000), is proposing to build a 20-megawatt power plant utilizing chicken litter, woody biomass, and other renewable resources. The plant will be operated on a continual 24-hour basis for a planned 350 days per year on a priority quality basis. The woody inert biomass used in this process is wood which has been produced as a result of land clearing or timber harvesting remnants (*i.e.*, "slash," or limbs, badly blemished timber, and tree service trimmings and toppings, all of which is not treated with any chemical). Wooden pallets made of oak, hickory, and sweet gum will also be blended into the ground timber remnants to make up the woody biomass to be used as fuel. Pine blocks cut off of clean pine lumber used in the manufacture of house trusses and house framing will also be ground and blended with the pallets and the timber remnants as biomass. All of this fuel is diverted from landfills and instead used as fuel; this reducing landfill volume and extending landfill life while the waste from this process creates an ash that is useable.

The process to be used is a typical, traditional boiler-turbine operation. It basically involves feeding the above-mentioned fuels into a bubbling fluidized bed at the base of the boiler. Hot gaseous energy is derived from combustion of the fuel, which is in turn transferred into a very pure water-containing loop system, which is changed in phase from liquid to gas (*i.e.*, steam), at 850 p.s.i. The energy in the steam is then routed to a steam turbine-generator where it is converted to mechanical energy and in turn to electrical energy for distribution onto the electrical grid.

The Air Protection Branch, Environmental Protection Division of the Georgia Department of Natural Resources will be issuing an Air Operating Permit to Earth Resources Inc. Based on the values of each fuel selected to operate Plant Carl and the emissions limitations due to the size of Plant Carl, the air operating permit will initially limit the fuel blend to be as follows: Food waste cooking oil will be used in the initial pre-heating and start-up. A constant and consistent blend of 20% chicken litter and 80% woody inert biomass (comprised of wooden pallets, clean ground up trees, and pine blocks from lumber cut-offs) will be introduced into the furnace and ignited, and after proper heat conditions are obtained, the burners using the waste cooking oil will be stopped. After that, only the chicken litter and woody inert biomass will be introduced into the furnace at the rate of 800 tons over a 24-hour time period.

Figure 5.1 shows the proposed Plant Carl property located on USGS 7.5 Minute series quadrangle maps, Red Hill and Ashland, Ga. Figures 5.2 and 5.3 (a preliminary plant layout and a general arrangement plan, respectively) show the boundaries of the property and the location of the proposed development area along with other information and characteristics of the land.

Chicken Litter. Georgia is the fourth largest nation on earth in poultry production. In particular, the northeast quadrant of the state contains the most concentrated region of poultry production. In the poultry production industry there is a tremendous amount of chicken litter produced from grower houses, and there are thousands of grower houses in North Georgia. Growers such as Wayne Poultry, Mar-Jac, Fieldale, Gold Kist, and Tyson are the “integrators” doing business with these houses. The houses must be cleaned out approximately every 6 months. According to the Georgia Poultry Association, the poultry industry is expected to continue its historical growth rate of 3% annually.

The integrators have requirements for chicken houses to be cleaned. For example, Perdue Farms may have their houses cleaned out each 4 flocks—a flock is industry-wide a period of 40-42 days. Fieldale Farms may have their houses cleaned every flock, as well as House of Raeford may clean their houses every 3 months. So, the grower is in essence subject to the policy of the contract holder. Additionally, the growers are given chicks to mature to the 42 day period at different given intervals to give the best collection for the processing plant requirements, the feed delivery segments of the operation, as well as the chicken litter clean out folks to have some control of distribution of the waste for land spreading application considerations. This is a very complex situation and varies from day to day with the continual growth of the industry as well as the eventual retirement of different growers and or houses as time passes. The industry growth is at a steady 3% growth rate according to the Georgia Dept. of Agriculture.

Data from the Georgia Dept. of Agriculture and the University of Georgia in Athens, indicates 2 million tons of chicken litter annually is produced in Georgia alone. Franklin and the surrounding counties produces 763,000 tons of chicken litter; this figure is based on the fact that there are 4,900 chicken houses within a 20 mile radius of Plant Carl. Attachments of published data are included to support the values mentioned (Section 7.3, Appendix C).

The Georgia Environmental Protection Division (EPD) is steadily exerting pressure towards compliance with clean water standards as related to poultry houses and waste litter disposal. The soil nutrient survey requirements that have been implemented are a paperwork-intensive process that determine the amount of litter allowed to be spread on land sites. As the litter waste stream gets larger and urbanization continues, locations available to spread waste litter as fertilizer diminish and the cost of taking it elsewhere becomes problematic. On the woody biomass side, ERI has developed a construction and demolition landfill. With development and growth moving steadily towards Franklin County, a significant long-term input stream is anticipated. In an effort to conserve space in this operation, ERI intends on culling the usable woody biomass component from that input stream for use as a clean fuel to mix with the chicken litter.

The chicken litter portion of the fuel will be stored out of the weather and in sufficient quantity for three days operation. An additional seven plus days supply of woody biomass will be maintained. We will therefore have a minimum ten day plus fuel back-up supply for periods when inclement weather or other factors make the intake of fuel difficult or impossible. The plant together with the fuel storage area and electrical facilities will cover about five acres.

Woody Inert Biomass. The woody inert biomass is calculated from the inert landfills providing product located in Madison County, Jackson County, and Stevens County Georgia. The pallets that are a part of the woody inert biomass are collected in Georgia and South Carolina and brought to the C&D landfill very close to the Plant Carl site (one-half mile apart) for processing. The processed pallets are blended with lumber cut-offs and tree waste pieces as well. Franklin County Tax Map parcels 050A & 073 (Figure 5.4, Franklin County Tax Map) will define each property. ERI has two contracts with nearby companies to supply no less than 100,000 tons of woody inert biomass each per year to be used as fuel and one fuel agreement for no less than 77,000 tons of chicken litter per year (Appendix D, Contractual Agreements).

Waste oils and Fats. The other renewable resources are oil and grease collected by companies from the NE Georgia region and trucked to facilities near the proposed Plant Carl site. One company is North Georgia Processing, 940 Oliver Road, Martin, GA 30557. They collect waste cooking oil, grease from restaurants, and waste fat from chicken processing plants in Georgia. The waste is processed by heating and separation by specific gravity, then filtered, pressed, and dispensed into tractor-trailer tankers and delivered to feed mills for use in cattle and chicken feed as a fat and protein additive. Plant Carl will use the same product as start-up fuel.

General Description of Operations. Chicken litter will be brought to the site and stored in a negative draft building. Attached to the building will be a large fan and dust collector system to capture air borne particles, with the air continuing on for use as the combustion air in the furnace. Thus, odor at the site will be controlled, the ammonia in the "storage air" will assist in lowering NO_x emissions, and the air motor demand for the furnace air will realize a two-for-one use. Naturally occurring ammonia, produced from the oxidation of urea in the chicken litter, will be directed in the air flow into the furnace and will impact emissions by reducing the NO_x levels in the post combustion flue gases.

A pilot plant was specifically designed and modified by ERI to get first hand experience relating to combusting chicken litter issues. In addition, ERI received a USDA/DOE grant to further study the impact of chicken litter as a fuel. ERI, along with the University of Georgia Engineering Outreach Service and Gas Technology Institute (GTI) of Des Plaines, Illinois as team partners, participated collectively in looking at the gases and ashes that remain as a result of

combustion. The pilot plant has run on numerous occasions for demonstration purposes. The unit indicates excellent promise as far as emissions from a plant utilizing chicken litter and wood for fuel.

In conclusion, the excellent environmental benefits to the agricultural community make this a win-win situation that offers an environmental value to the power end user and an additional option for the poultry producers. See Section 7.2, Appendix B for the results of these studies.

1.1 Need for the Action

Based upon all 28 Green Power EMCs' annual Board-approved 2005 Power Requirement Study, current generation capacity will be insufficient to meet the projected increase in power requirements of Green Power EMCs. The anticipated electric load growth of Georgia's retail member cooperatives will need additional generating capacity.

The proposed Plant Carl will help address two significant environmental problems. First, chicken farmers will have an additional option to dispose of their chicken litter without further damaging the soil and associated surface water runoff from the land they spread it on. Second, landfills filling up with construction and demolition material is a common problem anywhere growth is occurring. Plant Carl will combine the woody inert biomass from timbering, landclearing, and construction with the chicken litter to create a fuel source to generate Green Power. With proposed Plant Carl located adjacent to an existing landfill that is designated for construction and demolition material, it will have easy access to abundant sources of fuel – woody inert biomass from this landfill. This will help conserve space at landfills, thus giving them a longer life and fewer will have to be built in the future.

The adjacent landfill is not part of the RUS loan. Earth Resources of Franklin County LLC is a free-standing business located on a property owned and operated by the same company. Figure 5.4 shows a tax map that identifies both sites. The tonnage coming into the landfill will come from land clearing, construction and demolition debris, development that is ongoing and expanding around the Atlanta, Georgia metro area. Landfill space is saved by separating and recycling the clean woody inert biomass before landfilling the remaining remnants.

Additional sources of woody biomass fuel includes the collection of waste pieces of construction lumber and used pallets from the Greenville, South Carolina metro area and from the Atlanta, Georgia metro area and surrounding industrial activities connected to both states respectively. A fuel contract agreement between Earth Resources and Carter Royal Dispos-All Inc. has an existing agreement to commence prior to the commissioning phase of Plant Carl to deliver to the landfill for free pallets and wood blocks. The contract agreement will

continue for the duration of the 15-year Purchase Power Agreement (Appendix D). Carter Royal gets paid to place roll-off boxes at currently 47 different facilities in both states and remove this same material and haul to landfills. Carter Royal will realize a substantial benefit. Earth Resources will not charge a tipping fee to Carter Royal. Earth Resources will benefit at Plant Carl by getting a guaranteed 100,000 tons annually of high BTU value fuel at no cost. Carter Royal currently has 350 roll-off boxes circulating on these routes. More companies want to contribute and give business to Carter Royal upon learning that the environmental impact of their waste streams are being diverted from landfills and recycled into use contributing to "clean green power." Copies of all signed fuel contracts are included in Section 7.4, Appendix D, Contractual Agreements.

Plant Carl benefits from obtaining fuel for operation without cost in terms of transportation, or in tonnage purchase costs. The landfill will supply Plant Carl with clean fuel on a constant basis. The landfill project has completed all Georgia EPD environmental requirements. The State of Georgia EPD Director has all but to issue the permit to begin operation. The permit is scheduled to be issued during 2006. A benefit to both companies is realized. In conclusion, the future of Plant Carl is an important environmental asset. This proposed plant will create Green Power from nuisance waste to feed back into the power grid. This is a win-win solution for the environment and energy conservation of the future.

1.2 NEPA Requirements for RUS Actions

This document was prepared in accordance with 7 CFR Part 1794, Environmental Policies and Procedures; and regulations established by the Council on Environmental Quality (40 CFR 1500-1508). This report identifies potential impacts to the environment associated with the construction, operation, and maintenance of Plant Carl within the framework of the cited RUS guidance.

Under 7 CFR Part 1794.24, the Rural Utilities Service (RUS) identifies proposals that normally require an Environmental Assessment with Scoping. Section 1794.24(b)(2) states that "construction of ... [an] electric generating facility of more than 20 MW but not more than 50 MW (nameplate rating)" fall into this Environmental Assessment with Scoping classification.

This Environmental Report has been prepared to satisfy National Environmental Policy Act (NEPA) requirements (Public Law (PL) 91-190, 42 United States Code 4321 et seq.) as amended in 1975 by PL 94-52 and PL 94-83. The NEPA process is intended to help federal agencies make decisions based on an assessment of the potential environmental consequences associated with a proposed action, and implement appropriate measures to avoid and mitigate such consequences. In addition, RUS Bulletin 1794A-601 (revised) provides guidance for preparing an Environmental Report for electric projects requiring an

Environmental Assessment. Additional guidance for RUS funded projects requiring Environmental Assessments with Scoping is provided in RUS Bulletin 1794A-603.

1.3 Location

The site for Plant Carl is located in Franklin County, GA near the county seat of Carnesville on State Route 198 two miles from Interstate 85. The deciding factors for the location of this project are geographic, economic, and ownership driven. There were no other sites considered in Georgia since the location of this site meets all of the necessary requirements.

For this plant to run efficiently, the location of the site is a major factor. The land is in a location central to the poultry farms in North Georgia and is beside a landfill that will allow easy access to a major source of woody inert biomass that is also needed for fuel.

Plant Carl will be a good asset for this community and will start the Distributed Generation Systems. The local people welcome the project. It is minimally disruptive to the environment because portions of the land were previously graded for an abandoned project that turned out not to be feasible.

1.4 List of Federal Permits and Licenses

Throughout the planning process, this project has been designed and reviewed to minimize environmental impacts. This process included the following:

- careful consideration of the need for this project to meet the demand for green energy projects from electric membership cooperative members;
- a public scoping meeting held by RUS and ERI to explain the project to the affected communities and to solicit comments;
- a review of applicable laws and regulations;
- agency correspondence and coordination to introduce the Plant Carl project, present project planning, and coordinate permitting requirements;
- design of the project to avoid, minimize, and mitigate potential adverse environmental effects;
- public notice regarding the availability of an environmental assessment.

Environmental reviews and coordination include the following:

- Air Protection Branch of the Environmental Protection Division of the GA Department of Natural Resources concerning emissions standards and acquiring an Air Quality Permit;
- Historic Preservation Division of the GA Department of Natural Resources regarding potential project-related impacts to resources listed or eligible for listing on the National Register of Historic Properties;

- U.S. Fish and Wildlife Service regarding potential impacts to threatened and endangered species, designated critical habitat, and wetlands;
- U.S. Army Corps of Engineers, Savannah District, regarding potential impacts to wetlands and floodplains;
- U.S.D.A. Natural Resources Conservation Service regarding potential impacts to hydric soils, important farmland, prime forest lands, and prime range lands;
- GA Department of Community Affairs, Georgia Mountains Regional Development Center (RDC) notifying the RDC and member communities of the proposal and soliciting comments;
- Franklin County Board of Commissioners regarding compliance with local zoning and land use regulations;
- Phillips Technical Services, Inc., an engineering firm, regarding whether the proposed site is within a flood-prone area;
- Franklin County Board of Tax Assessors regarding history of structural occupations on the site; and
- Phillips Technical Services, Inc., regarding preparation of site grading and drainage drawings, preparation of an Erosion, Sedimentation, and Pollution Control Plan, preparation and submittal of a Notice of Intent to GA EPD prior to land disturbing activities, the installation and maintenance of the Erosion, Sedimentation, and Pollution Control Plan; and preparation and submittal of a Notice of Termination to GA EPD following the end of land disturbing activities and the completion of site stabilization.

1.5 Public Scoping

A public scoping meeting was held at the Franklin County Justice Center in Carnesville, GA on Sept. 11, 2006. The Franklin County Citizen was the legal instrument used to notify the public about the meeting. The newspaper carried two separate ads, one with a display advertisement measuring 3" x 6" and including a map depicting the proposed location of Plant Carl. The display ad advised the public to look for a second advertisement, a legal ad containing an explanation of the project, in the legal advertisements section of the newspaper.

The newspaper ads appeared 30 days prior to the public meeting. Three locations were identified in the newspaper informing the public of opportunities to review environmental and other project information. Information was placed at the Franklin County Courthouse in Carnesville, at the public library in Lavonia, and in the public library in Royston. A sign advertising the public meeting was placed at the entrance of the Plant Carl site on State Route 198.

A total of fourteen individuals attended the public meeting. Rob Langston and Nurul Islam from RUS were available to respond to any comments or questions regarding the agency's policies and procedures. Four Earth Resources employees

were present to address any comments or questions concerning the project itself. A court reporter attended for the purpose of preparing a transcript of the meeting (Section 7.9, Appendix I: Minutes of Public Meeting). Five people in attendance were local citizens who attended to learn about the proposed project.

There were no comments made at the meeting that could fairly be characterized as antagonistic towards the project. From a review of the meeting transcript, the project will be welcomed by the neighbors who have chicken houses, because (1) litter must be cleaned out periodically and (2) Plant Carl will provide an alternate source of disposal that is not so weather-dependent as more traditional methods of litter disposal.

Copies of the display and legal advertisements from the *Franklin County Citizen* and a copy of the court recorder transcription of the public meeting are provided in Section 7.9, Appendix I.

1.5.1 Federal Register Activities

On Friday, August 26, 2006, Rural Utilities Service published in the Federal Register a *Notice of Intent to Hold a Public Scoping Meeting and Prepare an Environmental Assessment*. The notice provided details regarding the time and location of the public meeting referenced in Section 1.5. A copy of this Federal Register Notice is provided in Section 7.9, Appendix I.

A Notice of Availability of an Environmental Assessment will be published in the Federal Register and local newspaper publications. Interested parties will be invited to review copies of this Environmental Assessment and submit comments to Rural Utilities Service in accordance with the terms of the Notice.

If, based on the Environmental Assessment, Rural Utilities Service determines that construction and operation of the proposed Plant Carl will not result in any significant environmental impacts, a Finding of No Significant Impact (FNSI) will be published in the Federal Register and local newspaper publications.

2.0 Alternatives Considered

2.1 Alternate Locations

The proposed site was purchased several years ago by the project proponent to use for a different project that was eventually abandoned. A portion of the property which was graded for the abandoned project will be used to site Plant Carl. The location of this site is good for many reasons, but especially due to its accessibility to fuel sources and adjacency to existing transmission facilities and the fact that the site is already disturbed. The scoping process demonstrated that the proposed facility would be welcomed by the community.

2.2 Alternate Methods to Provide Service

The electrical facilities needed to connect Plant Carl to Hart EMC's existing North Carnesville Substation will be designed by Hart EMC. They anticipate using the existing and already disturbed transmission line right-of-way to build a new 12 kV distribution circuit from the substation to the plant (approximately 0.6 miles west of the substation). No new landclearing will be required. Georgia Transmission will wheel the power over to the Carnesville Substation by means of a 12.5 kV three phase distribution line and will make necessary modification at the existing Carnesville Substation within the existing fenced area.

Plant Carl will put into place a step-down transformer on the outbound side of the generators in order to improve safety for both parties. All these facilities will be located on the five acre foot print immediately to the north of a Georgia Power transmission line right-of-way as shown in Figure 5.2.

Hart EMC will construct the 12.5 kV, 0.6 mile distribution line between Plant Carl and the low side of their existing North Carnesville Substation, using the existing transmission line right-of-way. Georgia Transmission will upgrade facilities at the existing North Carnesville Substation within the existing fenced area. Plant Carl will require only a small service drop because it will use the power it produces to run the plant. Interconnection is described in Section 7.5, Appendix E, Interconnection Diagrams.

2.3 Alternate Construction Methods and Materials

Mr. Charles C. Dinsmore, the owner of ERI, is an individual who seeks to blend his projects into their surroundings in a tasteful and natural aesthetic manner. The buildings making up Plant Carl will all be enclosed structures. The buildings and associated structures will be painted in earth tones to the maximum extent practicable and sited to compliment the surrounding topography. The tallest structure will be the boiler building, about 80 feet high, which will blend naturally

with the surrounding tree canopy. The top of the stack will be approximately 85 feet above ground level.

The area around the buildings will be paved for parking in addition to appropriate drives for traffic control. The entire plant will have a suitable chain link security fence and gates around it for safety and access control.

The entrance off State Route 198 is approximately a thousand feet from the plant. The entrance drive and drives within the plant as well as the parking areas will be graded and paved with suitable landscape plantings. The overall result will be a facility that is not readily seen from the road. The entrance will not resemble a typical industrial park entrance, but that of a moderately upscale residential subdivision.

2.4 Alternate Designs

There are many companies trying to develop renewable energy with little or no impact on the environment. ERI has spent the last 3 years researching and developing the utilization of chicken litter and woody biomass for fuel, and that is the proposal being advanced.

Earth Resources, Inc. considered a traveling grate style configuration for the fuel, combustion, and ash handling issues surrounding a proper operation of a project such as Plant Carl. After much review, study, and calculations pertaining to emissions with this type of technology, a change of course and consideration of the bubbling fluidized bed became the most obvious means to achieve a more efficient operation of our project.

Cleaner emissions was the number one reason for the change in logic to utilize the bubbling fluidized bed configuration instead of the traveling grate for Plant Carl's operation. There were no other considerations of design for Plant Carl.

2.5 Load Management and Energy Conservation

Electric cooperatives in Georgia have effective load management practices and well promoted energy conservation programs. However, even with these conservation and load management programs, additional power is required to meet demand. The proposed Plant Carl will not use any power that is supplied by any electrical grid. This plant will use a 2 MW generator for start up. The plant will create its own power for its power needs. It will not interfere with or cause any flicker to the consumers in the area.

2.6 Alternate Generation Technologies

This proposed project is an alternative to the more conventional ways of producing electricity.

1. Wind - In order to produce 20 MW on a continuous basis (7 days/24 hours), there is not enough wind sources in this part of the country. It may require large wind mill farms and many tall wind mills, which may be cost prohibitive and not practical for this area.
2. Solar - Due to the weather conditions in Georgia, there are many cloudy days in the state of Georgia. The amount of panels and sun that would be needed in order to produce 20 MW of power on a continuous basis would not be feasible.
3. Plasma Arc - Plasma Arc Technology is a patented and proprietary process. It is not yet widely available in the market place.

With respect to Wind Power, three references obtained on November 2, 2006 from published documents referring to the wind energy study project in Floyd County are included in Section 7.8, Appendix H, Wind Power in Georgia. All three documents conclude that north Georgia's topography does not lend itself to the economies of scale and cost for installation of wind power infrastructure.

For example, the Associated Press article dated September 26, 2005, states:

The North Georgia mountains are the only areas of the state where wind generation will work, said Michael Whiteside, president of Green Power EMC, which runs the renewable-program for 17 [at that time, there are now 29 in 2006] Georgia electric cooperatives.

But initial results from the first two months of the study are showing the area has slow wind speeds of 6 to 10 mph.

“You need higher speeds to put in large turbines,” Whiteside said.

With respect to Solar Power, a small but effective beginning is slowly being established and will ultimately grow as technology advances. There are numerous small solar power panel installations that have been provided by Georgia EMCs on school properties as positive results that the sun is capable of being a provider of power to offset energy costs to those facilities. Although small in scope, these installations provide positive results demonstrating that the sun can, given clear weather, provide power to help meet energy demand and partially offset energy costs at the schools.

- Jackson EMC has sponsored a solar project at Mill Creek High School;
- Irwin EMC has sponsored a project at Irwin County High School;

- Coweta-Fayette EMC has sponsored a solar project at Sandy Creek High School;
- Walton EMC has sponsored a solar project at Oconee County High School;
- Greystone Power has sponsored a solar project at Hiram High School; and,
- Snapping Shoals EMC has sponsored a solar project at Heritage High School.

2.7 No Action Alternative

If Plant Carl is not built, the proposed 20 MW would have to be produced by fossil fuels, which are not environmentally friendly fuel sources. Georgians will be deprived of a clean source for producing electricity. In addition, the “No Action” alternative would result in less economic growth in the area.

The Energy Revolution includes a major migration into Distributed Generation Systems (DGS), an architecture under which numerous small and efficient power plants located near customers will replace today’s larger, inefficient plants. DGS will not only connect to the existing distribution grid system, but will also develop and deploy their own “micro grids” to serve nearby customers.

Woody biomass and chicken litter will create major problems for landfills and the land that the chicken litter is spread on. Without the plant in place, the woody biomass and chicken litter will have a greater impact on the environment to dispose of the materials.

3.0 Existing Environment

This section discusses existing environmental conditions associated with the proposed generation plant site in Franklin County and development of Plant Carl.

3.1 Land Use

General Project Area. The terrain in the vicinity of the proposed power plant, Plant Carl, is gently undulating with a mixture of secondary growth hardwoods, pastureland, grass cropland, limited planted pine tracts, poultry operations, and rural residential sites. This area, located in Franklin County in northeast Georgia, consists of a mixture of small agricultural operations with small residential sites. The residential sites are typically on the order of three to ten acres while the agricultural operations are typically forty to 100+ acre family operations. A fair share of the family operations are supplemented by outside employment. The majority of those operations are poultry, namely broiler chicken production. The balance of the agricultural operations consists of pasturage, some hay cropping, and cattle production.

The poultry producers typically range in size from two to six or eight chicken 'houses', with some having up to sixteen or more houses. The typical chicken house's production is six flocks per year with 30,000 broilers in each flock. There are between 1,000 and 1,100 chicken houses within a ten-mile radius of the proposed Plant Carl site.

Formally Classified Lands. The National Park Service (NPS) of the U.S. Department of the Interior operates ten units in the State of Georgia, including facilities such as National Battlefield Parks, National Historic Sites and National Monuments. There are no NPS-managed properties in or near the site.

There are three National Wildlife Refuges (NWRs) managed by the U.S. Fish and Wildlife Service in Georgia: the Okefenokee National Wildlife Refuge; the Piedmont National Wildlife Refuge; and the Savannah National Wildlife Refuge. The proposed project is not located in or near any of these National Wildlife Refuges.

Throughout Georgia, the Parks, Recreation and Historic Sites Division of the Georgia Department of Natural Resources operate 44 State parks and 14 Historic Sites. The State of Georgia operates Tugaloo State Park, which is located 15 miles to the north and Victoria State Park which is located 24 miles southeast of the Plant Carl site.

Proposed Site. The site is located on Georgia State Route 198 (SR 198), two miles from Interstate 85 in Franklin County. The entire plat of land on which Plant Carl will be sited consists of 139 acres. The plant structures will be situated

1,000 feet off GA 198, with the entrance designed similarly to the entrance of a modern subdivision development.

The planted pine areas are on the order of 20 years old. Secondary growth hardwood areas were typically cultivated areas prior to the 1950's and 60's, a considerable amount of which was devoted to cotton production. Also located in the 139 acres are two feeder creeks and two ponds. These features are located well outside the area to be disturbed. One of the creeks is a small feeder creek to Indian Creek, also a very small creek. The two ponds are along the creek that feeds into Indian Creek. The creeks are dry throughout most of the year. The only time water is present in any one of these creeks is after a very heavy rain. These features will not be disturbed during construction or day-to-day operations at all. The creeks and ponds can be clearly seen in Figure 5.5.

Five acres were cleared and graded previously for a since abandoned project initiated two years prior to Plant Carl. Due to engineering and safety considerations, the previous project was delayed until a more cost effective process could be proven. The actual plant and related facilities will be built on the five acres that was previously graded. By using this site, new grading costs, construction weight load issues, and the time required for proper settling will be eliminated. Incorporating the previously graded land will help minimize environmental impacts.

A cross-country high voltage transmission system with its associated right-of-way passes on the back edge of the five graded acres. A power plant immediately adjacent to this right-of-way minimizes engineering problems and compliments the location setting.

In general the area to the south is a 275 acre tract that is dedicated to the C&D landfill. This landfill will not only act as a privacy buffer but will also serve as a producer of fuel for the plant, since the plant can use any woody biomass that may be brought to the landfill. To the west is a chicken farm operated by the Camp family, who is very much in favor of the plant (see minutes of Public Hearing in). To the north is another hen farm and to the east are woods and pasture that does not support animals. The pasture is an annual producer of hay.

The property is zoned CI-Commercial and Industrial according to the zoning regulations of Franklin County and accompanying land use map adopted on April 4, 2005. The proposed project complies with that classification. A letter verifying this land use classification is shown in Section 6.6 of the Correspondence Appendix.

Previous Project Abandoned. The grading at the site that will be the home of Plant Carl was begun May 05, 2005 and was complete on May 28, 2005. The site was originally graded to host the site of a gasifier-style renewable energy site.

The gasifier information and supporting data are to be sent along with the other support documents in the form of reports furnished by GTI (Appendix B). Two years of information compiled into the report, that after exhaustive research and considerations to safety and cost to start and operate a facility of this type, that the amount of capital to operate properly and safely were very far from economical. The project specifications would require gasification operation temperatures to run in a constant above 1100F. Costs for piping, valves, controls, and separation equipment that could safely and effectively operate at these temperatures are cost prohibitive. Insurance quotes to cover equipment and personnel per year was more than 2 times the amount of revenue the project would produce. In fact, the entire operation would begin losing money and would run "upside down" continually. So, the decision to continue to look for a more economical method to produce clean, safe, renewable energy became ERI.'s reason for canceling the gasification project. The site has not been re-graded at all since the original grading period. The reason for the "just done look" is due to the surrounding tree growth which has acted as an excellent buffer for wind-carrying seed which would lend to rapid growth on the bare dirt.

3.2 Floodplains

In furtherance of the National Flood Insurance Act of 1968, as amended and the Flood Disaster Protection Act of 1973, Executive Order 11988 directs Federal agencies to avoid the long and short term adverse impacts associated with the occupancy and modification of floodplains. The location of floodplains and special flood hazard areas is identified using maps produced by the U. S. Department of Housing and Urban Development or the Federal Emergency Management Agency.

Franklin County, GA is not currently a participant in the National Flood Insurance Program. Therefore no flood insurance rate map (FIRM) or Flood Hazard Boundary Maps are available for the project area. However, the proposed project is located at an elevation approximately 30 feet higher than the elevation of the nearest creek, and therefore it is unlikely to be located within a flood prone area. An investigation conducted by civil engineering firm Phillips Technical Services Inc., verifies this (Section 6.7).

3.3 Wetlands

Wetlands are present on the property along Indian Creek and two small feeder creeks on the southern part of the property. These wetland areas are shown on copies of the USGS maps (Figure 5.5) and the two ponds are clearly visible in the tax maps (Figure 5.4) . These two creeks are dry most of the year unless there is heavy rain in the area. Creeks and ponds are at least 500 feet away from any part of the plant and will not be disturbed. The location of the plant on the property is about 30 feet above the elevation of the nearest branch. During construction, soil

erosion and sedimentation control practices will be implemented so as not to discharge any pollutants to the creeks or ponds.

The EPD will be approving the Land Application Spray System that will be used to treat the water from the plant. The plant site and land application spray system are located away from any mapped wetlands and will not affect them.

3.4 Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, requires federal agencies to take into account the effect of undertakings on historic properties (archaeological sites and historic buildings, sites and districts) eligible for or listed on the National Register of Historic Places (NRHP). This consideration must be made in consultation with the Historic Preservation Division of the Georgia Department of Natural Resources.

3.4.1 Archaeological Resources

The proposed plant will be constructed on an already-graded site. There would be no significant archaeological resources associated with this kind of disturbance.

3.4.2 Historic Structures

The proposed plant will be constructed approximately 1,000 feet from SR 198, and the wooded property all around it will be kept as a buffer from adjacent properties. Based on the proposed scale of the development, it is not likely that the plant and its accessory structures will be visible from any nearby structures.

3.5 Threatened and Endangered Species

There are two protected animal species listed as potentially occurring in Franklin County, GA. The Bald Eagle (*Haliaeetus leucocephalus*), also known as the American Eagle, is a large bird of prey found in North America, most recognizable as the national bird of the United States. The species was on the brink of extinction late in the 20th century, but now has a stable population and is in the process of being removed from the U.S. federal government's list of endangered species. The Bald Eagle nests in very tall trees located near very large waterbodies, a habitat not found on the proposed Plant Carl site.

The Robust Redhorse (*Moxostoma robustum*) is a large (maximum size about 760 mm overall) riverine fish belonging to the family Catostomidae (suckers) that was thought to be extinct but was re-discovered in Georgia's Oconee River. during the summer of 1991 by personnel from the Department of Natural Resources (GA DNR). Currently, the species is known only by the population in the Oconee River and attempts by GA DNR to locate other populations in the fish's historic

range (i.e., Atlantic Slope drainages from the Pee Dee River in North Carolina to the Altamaha River system in Georgia) have been unsuccessful. No suitable habitat for the Robust Redhorse exists on the proposed Plant Carl site.

3.6 Fish and Wildlife Resources

As discussed previously, the proposed Plant Carl site is a more or less 5-acre area already cleared and graded. While there is no suitable habitat for fish and wildlife resources on the plant site, wildlife utilizes the wooded portions of the 139-acre property, and fish are probably found in the two artificial ponds that exist on the property. Best Management Practices will be observed to protect streams and stream buffers from any soil runoff and sedimentation.

3.7 Vegetation

As discussed previously, the proposed Plant Carl site is a more or less 5-acre area already cleared and graded. Existing vegetation will be maintained as a buffer to screen the plant from adjacent and nearby properties. About a ten acre portion of woodlands south of the existing Georgia Power transmission line right-of-way will be used for a spray application irrigation waste water treatment system, which will benefit the vegetation within the spray application field; no clearing is required for this spray system.

3.8 Coastal Areas

The proposed project is not located within areas protected by the Coastal Barrier Resources Act of 1972 (16 U.S.C. part 3501 et seq.) or defined as coastal zone by the Coastal Zone Management Act (16 U.S.C. part 1451 et seq.). No impact to any area protected by the Coastal Barrier Resources Act is anticipated.

3.9 Air Quality

Combustion of woody biomass materials and poultry litter will result in the emission of criteria pollutants and hydrogen chloride. ERI has conducted an Air Toxics Review in accordance with Georgia State procedures and found the facility will be within the limits for any hazardous air pollutants. An exhaust stack air dispersion mathematical model was also run with all pollutant levels below the Georgia state acceptable concentrations. Complete air modeling and very comprehensive study were conducted prior to submission of the application.

ERI has received the Georgia Air Quality Permit required to operate Plant Carl. The Georgia Department of Natural Resources, Environmental Protection Division, Air Protection Branch issues these permits. The most current and best available control technology (BACT) will be incorporated into the emissions

controls. A copy of the permit, issued on October 31, 2006, is included in Appendix F.

Plant Carl is required to comply and will be able to comply with the emissions limitations of its Air Quality permit. ERI has modified and made test runs on a small pilot size boiler (40 horse power boiler) to gather data on the combustion of chicken litter. These runs have been in four to eight hour stretches. This has been in conjunction with an ongoing joint DOE/USDA grant (Appendix B) for the past two years using 100% chicken litter as fuel. Two separate flue gas analyses were carried out by the Engineering Outreach Program of the University of Georgia with promising results. Plant Carl will be able to meet the specific NO_x emission requirements for "green energy" as recommended by the Center for Resource Solutions (CRS). ERI will have the capability of operating on fuel mixtures of 100% woody biomass on down to a 60/40 blend of woody biomass to chicken litter, all of which will produce emissions that will be within air permit limitations.

A bubbling fluidized bed will be used at the bottom of the boiler to minimize nitrogen oxide (NO_x) emissions which will result in a lower combustion temperature than a traditional stoker grate boiler and is generally considered to result in lower nitrogen oxide emissions. An electrostatic precipitator (ESP) will be used to control particulate matter. This device is expected to control those PM emissions with an efficiency of approximately 98%. A dry sorbet injection (DSI) system, which scrubs the hydrogen chloride and sulfur dioxide pollutants from the exhaust gases will also be used. The expected control efficiency of the scrubber is 90% for the hydrogen chloride and 70% for the sulfur dioxide.

ERI proposes to install continuous emission monitors to measure concentrations of carbon monoxide and the opacity of the stack exhaust and to ensure compliance with applicable permit limits.

With respect to short-term air quality degradation, construction-related fugitive dust emissions and diesel emissions can result from land-clearing and construction operations. These short term impacts would be minimized at the proposed Plant Carl site because no new land-clearing disturbance is proposed. As previously described, Plant Carl's site is a graded and settled pad area which will be covered with gravel pack and rolled until a very dense surface is achieved. Grassing and erosion control BMPs will be implemented in order to minimize wind-borne soil erosion.

3.10 Water Quality

The largest body of water within the region is Lake Hartwell, located on the Savannah River which separates Georgia and South Carolina. A portion of the lake protrudes into eastern Franklin County. The lake is about 12 miles to the

northeast of Plant Carl. The nearest creek to the project site is Indian Creek, a perennial creek approximately four feet wide that flows on a southerly path and eventually empties into the Middle Fork of the Broad River, a Savannah River tributary. This creek is located one-half mile south of Plant Carl.

As can be seen on ERI's Preliminary Plant Layout (Figure 5.2), there are two very small feeder branches on either side of the parcel to the west and east which flow south to Indian Creek. The plant site is elevated about 20 to 40 feet above these branches. The one to the west is more than 500 feet from the edge of the five-acre plant site area. The one to the east is also more than 500 feet away the edge of the five-acre plant site area and forms part of the property line. The west branch continues to the south, feeding into an existing pond south of the Georgia Power easement. The branch then continues south to Indian Creek.

The water needed for Plant Carl's operation will consist of boiler blow-down water at the rate of 9.37 gallons per minute (gpm) and cooling tower make-up water at the rate of 151 gpm, for a total of 160.37 gpm. The 24-hour total of water usage per day is 230,933 gallons. That is based on ambient temperature of 85 F. Water demand will be reduced during cooler seasons.

The quantity of water needed for operation of Plant Carl on a daily basis is 231,538 gallons per day (including human consumption). The water will be purchased from the water supply system of Franklin County. Franklin County, Stevens County, and Hart County water systems are interconnected. The abundance of nearby lakes such as Lake Hartwell, Lake Russell, and Lake Keowi all contribute to the water system as well as support wells in all three counties.

In Franklin County, a new strategically placed water tank with a holding volume of three million gallons is now added to the three county system. The site for the tank is the highest point of elevation of all three counties. This will add 45 p.s.i. hydrostatic pressure that is produced without pumps for the system in the event of a multiple pump failure. This site is upstream from Plant Carl with the plant site closer to the tank (actually four straight miles) than the general tri-county area.

Boiler blow-down water and cooling tower make-up water will be discharged to a land application system. The spray field will be located to the south of the Plant Carl main plant area at the north edge of approximately 25 acres of planted pine trees. The trees are approximately 15 years into the growth stage. ERI anticipates the utilization of the uptake of the pines to assist in the daily outflow of the cooling water and the boiler blow down water. John Phillips, P.E., a Registered Soil Scientist and Design Engineer, will submit an application to the Georgia EPD for the system. He will represent ERI throughout the complete permitting and construction process for the land application spray system for Plant Carl water discharge needs. The preliminary layout for the land application system is shown in Figure 5.6 in Appendix

Short-term water quality degradation of nearby streams and ponds can result from failure to control soil erosion and sedimentation during clearing and construction-related activities. These short term impacts would be minimized at the proposed Plant Carl site because no new land-clearing disturbance is proposed.

The Plant Carl site operates under an existing Land Disturbing Activity Permit issued by Franklin County (Section 7.7, Appendix G). The permit requires the applicant, Earth Resources, Inc., to comply with the requirements of the National Pollutant Discharge Elimination System which includes the requirement to conduct all site work in compliance with an approved Erosion and Sedimentation Control (ESC) Plan.

3.11 Aesthetics

The buildings making up Plant Carl will all be enclosed structures. The buildings and associated structures will be painted in earth tones to the maximum extent that is practical and placed accordingly to match the surrounding topography. The tallest structure will be the boiler building, about 80 feet high, which will blend naturally with the surrounding tree canopy. The top of the stack will be approximately 85 feet above the ground grade.

The areas around the buildings will be paved or graveled for parking in addition to appropriate drives for traffic control. The entire plant will have a suitable chain link security fence and gates around it for safety and to control access.

The entrance off State Route 198 is approximately a thousand feet from the plant. The entrance drive and drives within the plant as well as the parking areas will be graded and paved in a pleasing manner with suitable landscape plantings. The overall result will be a facility that is not easily seen from the road and will not present itself as an atypical industrial park entrance, but that of a moderately upscale residential subdivision.

3.12 Transportation

The closest airport to the Plant Carl site is located in Canton, GA, about 14 miles to the southeast. The next closest airport is located in Stevens County, GA, about 17 miles to the northwest. Both airports are capable of small fixed wing aircraft and have a typical air traffic of four to ten flights per day of private owners.

The Plant Carl property is located on GA State Route 198 (SR 198). Typical traffic flow on weekdays consists of residents traveling across this section of the county as well as poultry integrator trucks. The poultry trucks are transporting birds and delivering feed to various grower's houses in the area. On weekends, poultry industry traffic continues to operate as this is a seven-day per week

industry. It is probable that Plant Carl will receive 1.5 trucks per hour based on the fueling requirements for boiler operation.

Clean-out crews picking up litter for land application run in daytime only. In fact, 90% of all of the truck traffic on SR 198 is limited to daytime activity. The only late night trucks are minimal deliveries between Carnesville and Toccoa, Georgia.

Plant Carl will receive all fuel requirements on a daytime schedule. The total number of tractor-trailer style trucks required for fuel delivery will be 27 per day. Delivery will be spread over a 10- hour period an average of 2.7 trucks per hour will be utilizing SR 198.

Surrounding highways include Georgia SR 51. This road is located to the south of Plant Carl approximately 2 straight miles. This highway is traveled in daytime by auto and various trucks traveling across the section of Franklin County the road exists on. Again, 90% of the truck traffic is daytime use with the majority of the trucks being connected to the poultry industry.

Interstate 85 is the main travel corridor between Atlanta, Georgia and Greenville, South Carolina. It continues into North Carolina and is an extremely heavy truck transportation route. This major road is located just to the south of Plant Carl. Only a small percentage of the trucks that will come to Plant Carl will utilize I-85. The collection of fuel for plant operation will be brought on non-interstate routes.

SR 320 is a state highway to the North of Plant Carl. This road runs basically in a parallel fashion with SR 198. It connects the city of Carnesville, Georgia and Toccoa, Georgia. Plant Carl activities will have a small impact with regards to this road. Only an occasional truck would use this route in order to bring fuel (wood blocks, pallets, and chicken litter) to the power plant site.

SR 106 is a state highway that is also in the area of Franklin County where Plant Carl will operate. This highway is located five miles to the east of the site. This is a route that will be used for fuel to be brought to the plant site. This fuel will consist of chicken litter and inert woody biomass. The wood will be transported from the inert landfill located in Madison County, Georgia. Chicken litter from the east side of Franklin County will be transported by truck on this road. This is basically a daytime limited function. The road has poultry industry traffic also on a daytime basis. Again, the poultry industry operates seven day per week traffic.

Earth Resources Inc. has contacted District One Access Management Section of the Georgia Department of Transportation (GA DOT) in Gainesville regarding requirements for the driveway entrance based on the expected traffic flow generated by Plant Carl employees, the anticipated truck traffic (27 truck/trailers on an eighteen hour / seven days a week basis), and ancillary delivery trucks, small poultry litter trucks, etc. GA DOT's correspondence (Section 6.10)

described Plant Carl as having “minimal expected traffic volumes.” The anticipated traffic volume is so minimal that, in GA DOT’s opinion, Plant Carl may not require accel/decel lanes for safe access to and egress from the site.

3.13 Noise, Odors, and Radio and Television Interference

Noise will be generated at Plant Carl. Specifically, the two main fans that introduce air into the furnace will be the majority of the noise. The fans inside the fan housing spin and push air at a set speed, and as a result the air moving inside the ductwork moving the air molecules through the duct are the source of "noise". The motors driving the fans also produce noise. The fan itself is a Clarage Model 1081220XLR-2STG. A 1200H.P. motor drives the fan. The noise level information indicates a short peaking db of 96 upon start-up and decreasing to 85db when fan speed is achieved and a constant operation is in place. The fan will only start and will continue to operate with the plant on a 24hr/7day schedule. The site itself is 1,550 ft from the nearest dwelling and is totally separated by dense forestation. Three buildings will also be sited between the fan and the nearest dwelling. The shortest building is 35ft. tall and the tallest building, the furnace building where the fan will be utilized, is 80ft. tall. The fan will be oriented on the rear of the furnace building facing open forest with no other dwellings for 1 mile.

The OSHA table for noise indicates that 80db sound requires an individual to speak loudly to communicate near activities and equipment operating at this level. The noise decreases incrementally as the distance increases. A large truck idling is equal to 80db.

Earth Resources will install partitions with sound absorbing properties at the fan location. The heavy forest and the distance of over one-fourth mile including the sound petitions should give very favorable sound operating conditions for even a still night with the wind blowing in the direction of the nearest dwelling.

Odor will occur as a result of the utilization of chicken litter as a portion of the fuel stock at Plant Carl. With best operating practices in mind, Earth Resources, Inc. will operate the fuel system at Plant Carl by providing two independent locations specifically for the two different fuels that will be blended and sent on for use in the furnace.

With respect to odors, the chicken litter will be delivered to Plant Carl by truck. A building 100 feet by 180 feet by 30 feet will be equipped with a Negative Pressure Draft system. The trucks will enter through a door that will remain normally in the "half-closed" position. A door on the other end of the building will also be in the "half closed" position. The door will raise fully to allow the truck to enter and unload. In essence, a drive thru/unloading and exit will be utilized. The half-closed position is to allow outside air to enter through the

opening continually. It is important for enough air to enter the building to control air static for proper combustion, for proper operation of the dust collector, and to allow system sensors to function properly. A fan and baghouse/dust collector attached to the building will also be a part of the air going to the furnace. This negative draft of air will not only control odor, it will also control dust. Negative pressure in the building means air will not flow out but air can flow in only, thus controlling odor and dust particles.

3.14 Human Health and Safety

To provide for public protection, Plant Carl will be designed to comply with the National Electrical Safety Code in effect at the time construction begins. Earth Resources Inc's experience in designing, building, and operating this type of facility indicates that the facilities are durable, structurally sound, and pose no threat to public health and safety under normal operating conditions and anticipated emergency conditions.

The waste generated from the process consists of : Ash as a result of reduction of fuel into mineral form. Chicken litter produces an average of 20% by volume of ash. Wood on the other hand has a much lower ash content by volume: for example, one ton of wood fuel will yield only 1% ash by volume. That equals approximately 20 pounds. The total long range volume of ash will be determined by the post commercial mandatory stack testing results. The results of this stack testing will give very close blending ratios of chicken litter and woody inert biomass. Currently, the permit will be written as the fuel being a blend of 20% chicken litter and 80% woody inert biomass, and will be adjusted to reflect the stack gas allowables. So, the resulting percentage of ash is at this time not a fixed number. The ash has a market value as a fertilizer, with a commercial value in the \$20-\$40/ton range. The ash will be sold F.O.B. at the site on contract.

3.15 Socioeconomic and Community Resources

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires federal agencies to address potential environmental justice considerations for all federal actions by determining if a project would produce disproportionately high and/or adverse environmental and/or human health effects on minority or low-income populations. If disproportionate impacts on these populations are identified, efforts must be made by the federal agency to avoid or mitigate these effects of its project. This executive mandate requires two related assessments: the determination of whether a minority or low-income population is present within a project area, and if so, whether that population suffers disproportionately high and adverse effects from the project.

According to the following table, consisting of data taken from the 2000 Census, whites make up approximately 89.5% of Franklin County and about 92% of Census Tract 9902, the census tract where proposed Plant Carl is located. Census Block 3024, a subunit of Census Tract 9902, is the census block where proposed Plant Carl is located. Census Block 3024 had only 40 residents in the 2000 census, all of whom were reported as white. Not only would the Plant Carl project not disproportionately affect minorities, it apparently would not affect any minorities at all.

	Block 3024 Block Group 3 Census Tract 9902 Franklin County, GA	Block Group 3 Census Tract 9902 Franklin County, GA	Franklin County, GA
Census 2000			
Total	40	1,615	20,285
White Alone	40	1,485	18,153
Percent	100.00%	91.95%	89.49%
Other than White Alone	0	130	2,132
Percent	0.00%	8.05%	10.51%

The following table also contains data taken from the 2000 Census website. The smallest census unit for reporting median household income is the Census Block Group. For Census Block Group 3, median household income was \$41,893, which is almost thirty percent higher than the median household income for Franklin County (\$32,134) in general and very close to the median household income for Georgia as a whole (\$42,433). In other words, the median household income for Block Group 3 of Census Tract 9902 represents 98.7% of the median household income for Georgia. Relative to the state and to the rest of the county, the residents of Block Group 3 are not a low-income population.

Block Group 3 Census Tract 9902 Franklin County, GA	Franklin County	Georgia
\$41,893.00	\$32,134.00	\$42,433.00

This observation is born out by an examination of Households Receiving Public Assistance. As shown in the following table (data taken once again from the 2000 census), the percentage of households receiving public assistance in the state of Georgia is approximately 2.91%. This rate drops slightly - about one-quarter of one percent - to 2.65% for Franklin County, and another four-tenths of one percent for the Block Group 3 area, which includes the site for proposed Plant Carl. Once again, Block Group 3 does not appear to be an area of low-income, and is, in fact, somewhat more prosperous than the county of which it is a part.

2000 Census	Block Group 3		Franklin County		Georgia	
Total Housholds	579		7891		3,007,678	
Public Assistance	13	2.25%	209	2.65%	87,403	2.91%
No Public Assistance	566	97.75%	7682	97.35%	2,920,275	97.09%

Earth Resources, Inc. anticipates that the proposed plant will require about 21 full-time employees. Approximately half of these positions will be offered to low to moderate income employees. An additional ten “indirect” jobs will likely result from the construction and operation of the plant.

4.0 Environmental Impacts

This section discusses potential environmental impacts associated with the proposed generation plant site in Franklin County and development of Plant Carl.

4.1 Land Use

The potential impacts to land use in the project area are in fact minimal due to the fuel handling control, dust control, erosion and stormwater run-off controls that will be in place permanently. The surrounding area will not be affected by dust or noise from Plant Carl operation, nor the cooling water evaporation which will be a by-product of the steam to condensate cooling requirement of the power plant. Wooded buffers will screen the facility from adjacent land uses.

In general the area to the south, a 275 acre tract that will be dedicated to the C&D landfill operation, will not only act as a privacy buffer but, will also serve as a producer of fuel for the plant. To the west is a chicken farm operated by the Camp family, who is very much in favor of the plant (see minutes of Public Hearing). To the north is another hen farm and to the east are woods and pasture that does not support animals. The pasture is an annual producer of hay.

4.1.1 Wild and Scenic Rivers

In Georgia the only river designated as a Wild and Scenic River is the Chattooga River located in the extreme northeastern part of the state (16 U.S.C. 1276). The proposed project is not located near the Chattooga River; and will have no effect on Wild and Scenic Rivers.

4.1.2 National Forests

The proposed project is not located in the Chattahoochee or Oconee National Forests; therefore, no impact to any federal Forest Service land is anticipated.

4.1.3 State and Federal Parks

Throughout Georgia, the Parks, Recreation, and Historic Sites Division of the Georgia Department of Natural Resources (GA DNR) operates State Parks, conservation areas, and historic sites. The National Park Service (NPS) of the U.S. Department of the Interior (USDI) operates National Battlefield Parks, National Recreation Areas, National Historic Sites, and National Monuments.

The proposed project is not located within or adjacent to any of the resource units operated by the GA DNR or any of the National Park units operated by the National Park Service. There are no properties owned or administered by Federal,

State, or local agencies or that have been accorded special protection through formal designation in any way near or associated with this project.

4.1.4 Land Development Regulations

Per the letter dated March 6, 2006 (see Section 6.6), the property is zoned CI (Commercial and Industrial) according to the zoning regulations of Franklin County and accompanying land use map adopted on April 4, 2005. The proposed project complies with that classification .

4.2 Floodplains

As stated in Section 3.2, Franklin County does not participate in the National Flood Insurance Program, and there are no Flood Insurance Rate Maps or Flood Hazard Boundary Maps available for Franklin County, GA. The Phillips Technical Services Inc., verification letter (see Section 6.7) confirms the plant site is not located within a floodplain.

4.3 Wetlands

As discussed in Section 3.3, there are wetlands identified on the U.S. Fish and Wildlife Service National Wetlands Inventory associated with Indian Creek and two small feeder creeks on the southern part of the property. No land disturbance will occur within or near these areas. Therefore, no adverse effects to wetlands is anticipated.

4.4 Cultural Resources

Section 6.3 contains correspondence with the Historic Preservation Division. Based on the previously disturbed nature of the site, the Historic Preservation Division states in their letter of April 21, 2006 that “the proposed undertaking will have no effect on archaeological resources eligible for inclusion in the National Register of Historic Places.

In the April 21, 2006 letter, the Historic Preservation Division requested information regarding an existing house that appears on the preliminary site layout as well as on the USGS topographical map. ERI submitted color photographs of this structure, a double wide mobile home located on previously existing foundations. This structure is clearly not eligible for nomination to the National Register of Historic Places.

Per the letter dated May 4, 2006 from Georgia Department of Natural Resources Historic Preservation Division, the HPD concurs that no historic properties eligible for listing in the NRHP will be affected by this undertaking. The

construction of this plant will therefore have no impact on any eligible historical or archaeological resources.

4.5 Threatened and Endangered Species

Section 6.1 contains correspondence with the U.S. Fish and Wildlife Service. As discussed in Section 3.5, the only two listed species for Franklin County GA are the bald eagle and the robust redhorse. Due to previous grading and tree harvesting in the area to be developed, there is not any suitable habitat for the bald eagle and the robust redhorse. No impact to threatened or endangered species is therefore anticipated.

4.6 Fish and Wildlife Resources

In the small area ERI will be involved in actual construction and operation of this project (about 5 of the 139 acres) are no water bodies or streams involved affecting birds or fish. The deer and other small animals have plenty of habitat to remain in with no interference from ERI's intended operation. The guidelines of the National Electrical Code as well as the National Electrical Safety Code will be followed as well as standard RUS guidelines for design of electrical power lines to the power substation located six tenths mile from the plant. No significant impacts to fish and wildlife resources are anticipated.

4.7 Vegetation

No new clearing will be required. Brush and grassed areas will be kept down when applicable with blades used above the surface and not in the dirt. There is a 115 kV transmission line right of way south of the plant site that is maintained by Georgia Power Company in low-growing grasses and scrub/shrub vegetation by bushhog mowers. No impacts to vegetation are therefore anticipated.

4.8 Coastal Areas

Because the project is located well inland of the ocean and significant water bodies, no effect on coastal areas and coastal resources will occur.

4.9 Air Quality

Air emissions will be in compliance with State and EPA permits. Earth Resources has modified and been making a number of runs on a small pilot-size (40 horsepower) boiler to gather data on the combustion of chicken litter. These runs have been in four to eight hour stretches. This has been in conjunction with an ongoing joint DOE/USDA grant (see Section 7.2, Appendix B, Grant Information) for the past two years using 100% chicken litter as fuel. Two separate flue gas analyses were carried out by the Engineering Outreach Program

of the University of Georgia at Athens, Georgia, with very promising results. Plant Carl will be meeting the specific NO_x emission requirements for "green energy" as recommended by the Center for Resource Solutions (CRS). ERI will have the capability of operating on fuel mixtures of from 100% woody biomass to a 60:40 ratio blend of woody biomass to chicken litter, with all mixtures in between being within the State and EPA parameters.

This project has been partially graded in the past under a previously submitted notice of intent to the Georgia EPD. A notice of termination has not been submitted to the EPD. Therefore, this project is still classified as active, with active soil erosion and sedimentation control requirements, and is currently subject to inspection and oversight from the permitting authorities. Dust control is a requirement under the NPDES rules regulated in Georgia by the EPD. As part of the best management practices required by the EPD, a water truck will be available on-site during the construction of Plant Carl to control any potential dust formation that may result from construction activities.

Plant Carl will be constructed within the terms specified in its NPDES permit to control fugitive dust emissions. Plant Carl also will operate within the emissions thresholds identified in its air permit. No significant adverse effects to air quality, either from temporary construction-related impacts or from long-term on-going plant operations are therefore anticipated.

4.10 Water Quality

As discussed in Section 3.10, ERI has obtained a Land Disturbing Activity Permit for the Plant Carl project (Section 7.7, Appendix G) and will construct its project and stabilize all erodible areas in compliance with the Franklin County permit and Georgia EPD regulations. There will be a strict supervision of the handling and storage of petroleum products, chemicals, toxic substances or hazardous materials to ensure no ground water contamination. The site is not located near a flood plain or flood prone area.

There will be no crossing of streambeds (there is no necessity to do so at all). A setback will be maintained from all streams and streambeds with a natural vegetative buffer zone that is already in place to minimize siltation and sedimentation. There will be no use of herbicides near the streams and streambeds. There will be no utility support structures of any kind whatsoever within streambeds.

There will be strict supervision of the handling and storage of any petroleum products, chemicals, toxic substances, or hazardous materials during construction-related activities to ensure that surface and ground waters are not contaminated.

As previously described in Section 3.10, Plant Carl's site is a graded and settled pad area which will be covered with gravel pack and rolled until a very dense surface is achieved. Grassing and erosion control BMPs will be implemented in order to minimize wind-borne and water-borne soil erosion. Based on the State of Georgia regulatory requirement to develop and implement a soil erosion, sedimentation, and pollution prevention plan, no significant impact to soil and water resources is expected to occur during construction activities. See Phillips Technical Services letter (Section 6.9) and the Land Disturbing Activity Permit, issued by Franklin County and in full effect at this time, shown in Section 7.7, Appendix G.

During the construction of Plant Carl the entire pre-graded site area will be fortified with gravel which will be applied thickly enough to support heavy trucks, cranes, and traffic delivering parts of the power plant inventory. Silt fencing and hay with seeding will be immediately placed around the entire perimeter of the site in order to avert any runoff due to rainfall. This fencing and hay will be inspected on a daily basis and following rain events.

All of the operating equipment on the site such as cranes and rolling equipment that is diesel powered will be very closely checked daily for any signs of leaks in the hydraulic systems, fuel cells, and motor/engine compartments. Any discovery will be repaired immediately. Stationary equipment will have drip pans and sorbent pillows to avert any possibility of oil leaks.

ERI will conduct its plant operations and maintenance activities in full compliance with all relevant Georgia Environmental Protection Division regulations designed to protect water quality.

The designed water discharge rate from Plant Carl operations is 18.79 gpm, or 27,058 gallons per day (gpd) total. The water will be treated to ensure that Georgia water quality standards are met. Discharge water will be sent to a land application spray system which will be located south of the Georgia Power transmission line easement (Figure 5.2). Surface area requirements specify a three-acre area for a one-eighth inch per day rate of application per acre continuous. Ten acres will be prepared for the land application to ensure sufficient surface area in the event of wet weather. The area dedicated for the land application spray system will be situated between rows of planted pines south of the graded area shown on the map. The natural water uptake rate of the trees' will be greater than the designed application rate by a factor of four.

No significant impacts to water quality will result from construction and operation of Plant Carl.

4.11 Aesthetics

A very long (+/- 1,000 foot long) driveway, heavily wooded buffers, and well-designed signage and landscaping at GA 198 will provide visual separation from traffic. Heavily wooded buffers will screen the facility from adjacent properties. The plant and its accessory structures will be designed and sited to fit the topography of the land and will be finished in coordinated earth colors. Based on the limited viewing potential, no impacts to the aesthetics of the area are anticipated.

4.12 Transportation

Because this is a small construction project, additional highway traffic due to project construction will be minimal. In the longer term, anticipated traffic from employees, fuel delivery trucks, and incidental deliveries is still minimal, as described by GA DOT, and will not significantly impact highway safety. Correspondence from GA DOT is included in Section 6.10.

The closest general aviation airports to the proposed project site are , so no airport glide paths will be affected by construction of Plant Carl. Given the heights of structures and the distance and location from the closest general aviation airports (14 and 17 miles), this project does not meet the criteria requiring notification of the Federal Aviation Administration (FAA), as outlined in FAA Regulations, 14 CFR Part 77, Objects Affecting Navigable Airspace.

Trucks delivering chicken litter and woody biomass to the plant would be operating on local roads even if this project were not built. They would be carting chicken house waste to disposal fields and woody biomass to landfills. Instead of making those trips, trucks will simply be bringing these materials to the plant. It is not likely, therefore, that any significant net increase in local vehicular traffic will occur. In any event, even assuming that an increase does occur, the addition of two to three trucks per hour on an improved State highway is not significant.

4.13 Noise, Odors, and Radio and Television Interference

Construction will take place during normal day hours. Since the areas between the construction site and nearby residences are heavily wooded, there will be minimal loud noises during construction. The loudest item would be the occasional use of a diesel-powered air compressor which is inconsequential given the distances to the nearest residences.

To control noise emissions during plant operations, Earth Resources will install partitions with sound-absorbing properties at fan location. With the sound-absorbing partitions, the heavy forest and the distance of over one-quarter mile to

the nearest dwelling should provide favorable sound operating conditions for even a still night with the wind blowing in the direction.

Chicken litter is the only potential source of odor from the plant, specifically the dumping and handling of it onto and off conveyances. Five features in the plant configuration and operating procedures will mitigate the potential odor from the plant. Unloading and handling will be accomplished within the poultry litter fuel house. The building will be a completely enclosed structure with a slight negative air draft being drawn from it and going to one of the combustion air sources for the boiler. With the negative draft, even the opening and closing of doors will prevent the escape of dust and odor from the building. The net effect will be that any dust and odors generated will be ducted to the boiler and consumed in the boiler combustion area. Operational practices will include covering all trucks transporting poultry litter and washing down all poultry litter delivery trucks before they exit the fuel house.

The flue stack gases from the combustion of chicken litter has absolutely no peculiar or offensive odor. Earth Resources has been running a pilot size boiler to gather data on the combustion of chicken litter. These runs have been off and on for four to eight hour stretches at times in conjunction with a DOE/USDA grant for over two years using 100% chicken litter as fuel with no offensive odor.

As Plant Carl will be properly constructed and grounded, it is not expected to generate significant radio or television interference.

4.14 Human Health and Safety

A properly grounded security fence with gates will surround the property. The plant will meet all National Electrical Safety Code in effect at the time construction begins. The electrical equipment portions of the project will be designed to minimize corona discharge as well as ozone formation. The plant will operate under an Air Quality Permit limiting emissions which could affect human health and the natural environment. No adverse effects from the construction, operation, and maintenance of Plant Carl are therefore anticipated.

4.15 Socioeconomic and Community Resources

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires federal agencies to address potential environmental justice considerations for all federal actions by determining if a project would produce disproportionately high and/or adverse environmental and/or human health effects on minority or low-income populations. If disproportionate impacts on these populations are identified, efforts must be made by the federal agency to avoid or mitigate these effects of its project. This executive mandate requires two related assessments: the

determination of whether a minority or low-income population is present within a project area, and if so, whether that population suffers disproportionately high and adverse effects from the project.

As was shown in Section 3.15, an examination of racial composition and income census data for the Plant Carl area shows the project area is white and relatively more economically prosperous than Franklin County as a whole. The proposed project, therefore, will not disproportionately affect minority or low-income populations.

4.16 Permitting and Construction

Earth Resources, Inc. will comply with the standards required by the Georgia Erosion and Sedimentation Control Act of 1975, as amended, which mandates that appropriate erosion control measures such as seeding, straw bales, silt screens, and vegetative buffers will be utilized where appropriate to prevent degradation of surface water quality during construction and operation. Earth Resources, Inc. will acquire all necessary permits and will comply with all pertinent local, State, and Federal regulations during the construction and operation of the project.

The usual noise, fugitive dust, and vehicular emissions from construction related activity would be temporary and minimal. The construction of these facilities should have no significant impact on the environment.

5.0 Figures

Figure 5.1 U.S.G.S. Topographic Maps

Figure 5.2 Preliminary Plant Layout

Figure 5.3 General Arrangement Plan

Figure 5.4 Franklin County Tax Map

Figure 5.5 National Wetland Inventory

Figure 5.6 Preliminary Land Application System Layout

Figure 5.1 U.S.G.S. Topographic Maps

Copies of U.S.G.S. 7.5-minute series topographic quadrangle maps.

Figure 5.2 Preliminary Plant Layout

Figure 5.3 General Arrangement Plan

Figure 5.4 Franklin County Tax Map

Copy of Franklin County Tax Map showing Plant Carl site and surrounding area.

Figure 5.5 National Wetland Inventory

U.S. Fish and Wildlife Service NWI wetlands mapped on USGS quadrangles in relationship to plant parcel and development.

Figure 5.6 Preliminary Land Application System Layout

6.0 Correspondence

Correspondence with various federal, state, and local agencies and consultants with respect to development of the Plant Carl project.

- 6.1 Correspondence with U.S. Fish and Wildlife Service
- 6.2 Correspondence with U.S. Army Corps of Engineers
- 6.3 Correspondence with Historic Preservation Division
- 6.4 Correspondence with USDA Natural Resources Conservation Service
- 6.5 Correspondence with Regional Development Center
- 6.6 Correspondence from Franklin County Planning Director
- 6.7 Correspondence from Phillips Technical Services regarding Floodplains
- 6.8 Correspondence from Franklin County Board of Tax Assessors
- 6.9 Correspondence from Phillips Technical Services regarding Erosion, Sedimentation, and Pollution Control Planning
- 6.10 Correspondence from Georgia Department of Transportation District Access Management.
- 6.11 Delivery Receipts

6.1 Correspondence with U.S. Fish and Wildlife Service

Correspondence from the U.S. Department of the Interior, Fish and Wildlife Service concerning threatened and endangered species and wetlands.

6.2 Correspondence with U.S. Army Corps of Engineers

Correspondence with the Regulatory Branch, Savannah District, U.S. Corps of Engineers, concerning wetlands.

6.3 Correspondence with Historic Preservation Division

Correspondence with the Natural Heritage Program of the Georgia Department of Natural Resources concerning Cultural Resources.

6.4 Correspondence with USDA Natural Resources Conservation Service

Correspondence with the Georgia Natural Resources Conservation Service of the regarding hydric soils, important farmland, prime forest land, and prime range land.

6.5 Correspondence with Regional Development Center

Correspondence with the Georgia Mountains Regional Development Center requesting comments on the proposed Plant Carl project.

6.6 Correspondence from Franklin County Planning Director

Correspondence from Franklin County Planning Director verifying zoning and that Plant Carl project complies with that zoning classification according to the county's Land Development Regulations.

6.7 Correspondence from Phillips Technical Services

Correspondence from Phillips Technical Services confirming that the proposed Plant Carl site is above any flood-prone areas on the property.

6.8 Correspondence from Franklin County Board of Tax Assessors

Correspondence from Franklin County Board of Tax Assessors verifying they have no evidence of structures ever having occupied this tax parcel.

6.9 Correspondence from Phillips Technical Services

Correspondence from Phillips Technical Services confirming that they will be preparing site grading and drainage drawings, a Soil Erosion and Sedimentation Control Plan, preparation and submittal of a Notice of Intent under the State's Soil Erosion and Sedimentation Control program, installation and maintenance of erosion, sedimentation, and pollution control plan, and preparation and submittal of a Notice of Termination for the proposed Plant Carl project.

6.10 Correspondence from Georgia Department of Transportation

Correspondence from District One, GA DOT verifying that the expected increase in traffic resulting from construction and operation of Plant Carl is minimal..

6.11 Delivery Receipts

Returned delivery receipts from agency correspondence.

7.0 Appendices

- 7.1 Appendix A: Company Information
- 7.2 Appendix B: Grant Information
- 7.3 Appendix C: Support Information about the Poultry Industry
- 7.4 Appendix D: Contractual Agreements
- 7.5 Appendix E: Interconnection Diagrams
- 7.6 Appendix F: Air Quality Permit
- 7.7 Appendix G: NPDES Permit Application and Permit
- 7.8 Appendix H: Wind Power in Georgia
- 7.9 Appendix I: Minutes of Public Scoping Meeting
- 7.10 Appendix J: Franklin County, GA Background Information

7.1 Appendix A: Company Information

Earth Resources, Inc. corporate background.

7.2 Appendix B: Grant Information

Animal Waste Management – Chicken Litter to Energy
USDA NRCS Grant 68-3A75-3-145

Annual Reports and GTI Analytical Report (USDA/DOE)

7.3 Appendix C: Support Information about the Poultry Industry

BMPs for Storing and Applying Poultry Litter

Department of Poultry Science, University of Georgia

New Georgia Encyclopedia website information about Poultry in Georgia

Georgia Agricultural Resources Poultry Fact Sheet

7.4 Appendix D: Contractual Agreements

Fuel Purchase Agreement: Recycled Green Energy, LLC

Fuel Purchase Agreement: Carter Royal Dispos-All, Inc.

Fuel Purchase Agreement: Ledford Farms, Inc.

7.5 Appendix E: Interconnection Information and Diagrams

7.6 Appendix F: Issued Air Quality Permit

7.7 Appendix G: Active NPDES Permit

7.8 Appendix H: Wind Power in Georgia

News Article: Data analysis begins in Floyd wind power study

News Article: Experimental wind energy projects underway in Georgia

News Article: Scientists conduct wind energy projects.

7.9 Appendix I: Public Scoping Meeting

Newspaper Advertisement

Court Recorder's Transcription

7.10 Appendix J: Franklin County, GA Background Information

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