

Penrose Biomass Energy Plant

What We Know and What We Need To Know

1. What we know.
 - a. A development group (Renewable Developers, LLC) is planning to build a pyrolysis-gasification biomass energy plant with a front-end “material recovery facility” (MRF) on the site of the Transylvania County Airport in Penrose, NC.
 - b. The individual who owns the property has executed an option contract for the purchase of some portion of the property on which the airport is currently located.
 - c. Although discussions about the project may have been going on for up to two years, the project developers are still in the design engineering and permitting process, making it difficult to understand, assess, and evaluate the pros/cons and costs/benefits of the project.
 - d. The current project is phase I of a potential multi-phase project. There is little definition of how many follow-on phases might be proposed in the future or what they will include.
 - e. People who live nearby are very concerned about a host of issues... aesthetics, increased truck traffic, property values, and air/soil/water quality impacts, among others.
 - f. Some county residents are very concerned about the impacts of this proposed plant on the image of Transylvania County as an outdoor recreation and tourism destination.
 - g. Some county residents are very concerned about potential environmental and health impacts.
 - h. Some county residents view the project as an interesting possibility, but need more information before they decide whether they favor or oppose the project.
 - i. Some county residents are in favor of the project.
 - j. This project will affect more than just Transylvania County. People throughout Western North Carolina are also involved and concerned.

2. What we need to know?
 - a. Who are the stakeholders that need to be involved in or aware of this project’s evaluation, approval or disapproval, ownership and operations, and its construction?
 - Developers and project partners (financial investors, engineering team, manufacturing equipment vendors, etc.) - who are they, what is their background in this type of project, and how will they be involved after it begins operations?
 - Residents of Penrose and Little River - the “backyard neighbors”
 - County residents in general
 - County Government - elected and appointed
 - Existing businesses in the county
 - Residents and businesses in the Western North Carolina region

 - b. Process/technology/plant operations questions.
 - What is the actual technology and process or processes that will be used in all parts of phase I?
 - What is the actual technology and process or processes that will be used in phases 2, 3, 4 and beyond?
 - Who will actually own and operate the plant and what is their experience with pyrolytic gasification of municipal solid waste (MSW) and alternate feedstock for this type of project?
 - What, exactly, is the source and composition of the feedstock for phase I?
 - What, exactly, is the source and composition of the feedstock for phases 2, 3, 4 and beyond?
 - Under what circumstances might feedstock plans be altered in any phase of the proposed project?

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- From what geographic area and range (miles away from the facility) will feedstock be coming from in phase I? How will it be transported to the plant? How might that change in follow-on phases?
 - What is the feedstock receiving and processing plan for a 24 hour cycle?
 - To what degree are the different parts of the processes automated, and how reliable are those automated processes? Are they new control systems or are they in use in other plants? Who provides those systems?
 - How many employees (of what job titles/duties) are expected to be on site at any given time, what level of training/education will they need, and what are their shift lengths/shift rotations likely to be?
 - What reduction in feedstock volume (by weight and percentage) is expected at each stage in the process and what are the component parts of that expected reduction (water, water vapor, recoverable/recycled materials, unusable feedstock, pyrolytic by-products, hazardous waste, and other waste products)?
 - Where are plants located that use this same technology/processes either operating, under construction, and/or in the proposal/evaluation stages?
 - Are there any well-documented US examples of this precise type of plant in commercially permitted operation and, if so, what results have been shown in economic and environmental terms?
 - Under what circumstances would plans for feedstock makeup change to include any material other than municipal solid waste?
 - Are there any plans to use woody biomass in any of the phases? If so, would whole trees be included and would they come from private or public sources?
 - What known health risks exist for people working in the plant being proposed by this project? How will they be monitored and mitigated?
 - What potentially hazardous materials will be used in plant maintenance and cleaning activities?
 - What is the process that will be used to clean raw syngas, what agents are used to clean it, and what byproducts result from this cleaning process, and what will be done with those byproducts?
- c. Environmental impact questions.
- Hazardous materials
 - How will materials in the feedstock that may contain hazardous materials (i.e. heavy metals, electronic components, CFL bulbs, etc.) be identified and eliminated prior to processing?
 - What is the complete inventory of hazardous materials/gasses in the anticipated feedstock, process emissions (both airborne & waterborne), and process residues, including priority pollutants and products of incomplete combustion (PICs)?
 - What happens to each of these hazardous materials that go through the process and where do those hazardous materials end up (i.e. airborne emissions, water vapor, water discharge, process residual materials, biochar, etc)?
 - How will any hazardous materials that are present in the feedstock, processes, and residual materials be sequestered and processed?
 - What points in the operation are capable of dioxin, furan, and heavy metal consolidation, generation, and/or release and at what levels?
 - Have any health assessments been done on the cumulative, additive and synergistic exposure levels of any expected air or water-borne pollutants
 - How will any residual ash resulting from the processes be handled and sequestered?

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□ Water

- What quantity of water (beyond human consumption) will the process require (in each component part of the processes involved) and where will it come from?
- How much water/water vapor will come with the feedstock and how will it be treated?
- How much water/water vapor will come from the technology/processes and how will it be treated?
- How will the watershed and water table surrounding the property and areas downstream of the project be affected by and protected from any runoff?
- What quantities of water are expected to be generated from feedstock processing, conversion process, and any cooling involved with phase one of the project? How will that change in phases 2, 3, 4 and beyond?
- What contamination risks (both expected and “worst case”) are there for water from each part of the process?
- How large will the water containment pond be and how will it be protected from overflow, floodwater intrusion, and entry into groundwater?
- How and how often will the water in the holding pond be transferred and how and where will it be transferred to?
- What is expected to be in any waste water put into the holding pond, how is it monitored for toxic content, and what specific hazardous compounds will be measured and monitored?
- Where will water discharge be generated in the processes involved? If so, what would the expected discharge temperature of any water coming out of each process be and how would that impact the watershed, streams, and rivers?
- What regulatory safeguards, design parameters and enforcement will be provided for the waste holding pond/lagoon construction, operation and maintenance?
- In the event of a holding pond/lagoon failure, what party is liable for the damages?

□ Air

- What air emissions would result from the processes that will be used?
 - Feedstock sorting and processing
 - Conversion processes
 - Syngas cleaning process
 - Generation of electricity
 - Production of biofuel in later phases?
- What fine particulate filtration or other controls will be used to mitigate windborne dust, ash and particulate matter of 10 micrometers or smaller? How much water, if any, will be consumed daily for such mitigation processes? How are any disposable components used in the filtration process handled?
- Based on prevailing wind patterns over the course of the year and the topography of the area, where will any exhaust gas plume travel and what does the distance/concentration/dispersion map for it look like?
- How do these emissions compare to landfilling MSW (with and without gas recovery)?
- How do these emissions compare to other electric generation technologies, such as coal, natural gas, other biomass technologies, wind, and solar?

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Soil

- What, if any, hazardous bottom and fly ash can be generated by the processes and who will be responsible for hauling and disposing of them? Will any hazardous ash be retained onsite and confined to prevent ash clouds on windy days? If the county will be responsible for toxic ash disposal in a lined landfill, how long will the financial liability be should the liner fail? Where will the funding come from to mitigate surface groundwater damage should the landfill liner fail?
- How will the delivered MSW be isolated from groundwater and soil contamination from weather events, i.e. in a hard rain, how does the leachate remain contained in the production area?

Process residuals

- What are specifics about how feedstock will be processed to remove and recycle all that can be recycled? What percentage of recoverable/recyclable materials will be removed before conversion and how will it be monitored?
- What residual material(s) come from the conversion process and what, if any, hazardous materials will be in them (including all gaseous, liquid, solid, and particulate)? How will they be evaluated/monitored?
- What usable products will be generated by the conversion process and how will they be evaluated/monitored? Who will be able to use them?
- Will residues from the process ever be sold for soil amendments and, if so, how will the content and quality control be monitored for hazardous components?

d. Project location, operation, safety, and aesthetics-related questions.

- How does the project work within existing flood plain boundaries on and around the project property?
- What plans exist to use the railroad right-of-way now, and in future phases?
- How would the developers interest in this site change, should the railroad tracks be converted to some other use (i.e. rails to trails project)?
- What will the project look like... from all sides and from surrounding hillsides that can see the plant?
- What will the noise level (decibels at different distances) be for various aspects of project operations?
- What additional lighting levels and intensity will be required for the project and how does that compare to what is there now?
- What specific safety hazards (fire, explosion, environmental, etc.) are present with this technology/processes and what will be done to reduce the probability of occurrence and/or improve response capability?
- What are the worst possible scenarios and/or problems that could develop in the technology/processes while in startup, operation, or shutdown and what would their impacts be on the air, soil, and/or water?
- Why was this location chosen? What other sites are being evaluated and what benefits does this site offer over other sites being evaluated?
- What special training will be required of first responders (police, fire, EMS, etc.) and/or healthcare providers for responding to any incidents at this facility?
- Is any special monitoring or air treatment required for residents, businesses and/or other facilities nearby? Will local residents be notified when emissions exceed EPA standards and, if so, how?

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- How will the facility deter rats, birds, coyotes, and bears from coming to the facility or the surrounding area in greater numbers than they do currently?
 - Will the proposed plant utilize a flues or stacks? If so, what is the expected height? Will it have a continuous flame? Will any flame be visible at night and, if so, from what angles and distances?
 - Has an emergency management/notification/response/evacuation plan been developed to account for any and all accidents that might occur (including worst case scenarios of process failures, weather-related events, and seismic activity)?
 - What sizes of any flare would be expected during normal as well as during "exceptional" operations?
 - What restrictions will be imposed on any flare time and rate?
- e. Regulatory compliance questions.
- How will emissions be monitored and what components will be measured?
 - What protocols will be used when EPA emission standards are exceeded?
 - Will compliance with EPA standards be measured in continuous real time or are average periods of time used with periodic measurements and, if so, what interval periods will be used?
 - Will there be remote air and water monitoring stations in neighboring communities installed as part of the project? If not, who will pay for them, if required?
- f. Permitting and approval questions.
- What county government ordinances, regulations, roles and permitting procedures must be considered in evaluating this project?
 - What authority do the county commissioners have to affect the permitting and approval process?
 - What is the role of county government in the state and federal permitting and approval process?
 - Are any agreements contemplated or in place to access public or private lands for wood or forest byproducts feedstocks to support any phase of this project, and what acreage/tonnage of forest feedstocks would be involved?
 - What options are open to the county and county commissioners to enact a moratorium on these type plants (and this project) to provide time for study and understanding by all in the community?
 - What permits/reviews/approvals would be required to change feedstock makeup after the plant begins operations?
 - What state laws and state agencies roles and permitting procedures must be considered in evaluating this project?
 - What federal laws and federal agencies roles and permitting procedures must be considered in evaluating this project?
 - What public notifications and/or hearings are required as part of all of the steps above and when/where will they be held?
 - Can or will the county or state charge the plant operator for maintenance and/or excess wear to state and county roads?
 - What public input and due diligence processes are the developers and county leaders in other counties pursuing?

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- If a permit is issued for “low source emission” (below 5MW), will that grandfather the facility if they increase capacity to more than 5MW in the future, or will they have to reapply under the standards in effect at that time?
 - What public disclosure and/or permitting process will be followed for future phases that may include different outputs as they will impact things like emissions, feedstock sources and types, infrastructure development, aesthetics, and impacts on the local area?
 - What are the specific dates of permit applications, review and comment periods, and decisions for county, state, and federal governments and agencies?
 - When will an environmental assessment be conducted, who will do it, and what provisions are included in this process for public input and participation?
 - What additional reviews/approvals are required for a septic system for a facility like this, is our county health department qualified to make that determination, and is it within their scope of approval authority?
- g. Economic questions.
- What are all costs/benefits (liabilities, cost savings, contractual fees, equipment, maintenance, coinsurance, tax subsidies, etc.) that the project presents to the county?
 - What are all costs/benefits (liabilities, cost savings, contractual fees, equipment, maintenance, coinsurance, tax subsidies, etc.) that the project presents to surrounding counties?
 - Based on anticipated weight of individual and cumulative truck traffic, what will the impact be on county and state roads in terms of wear & tear, additional incoming traffic and routing of that traffic, and additional outbound traffic and traffic routing?
 - What will be the net impact on existing recycling programs and will this project result in an increase or decrease in recovering and recycling material that can be reused or recycled?
 - How will this project current jobs in recycling, tourism, housing, recreation, retail, etc.. ?
 - Is there a mitigation plan for nearby property and/or homeowners whose property values decline? If so, who will be funding such a program and at what cost?
 - How will truck routing reflect and comply with posted weight limits on state and county roads?
 - What short and long-term commitments must Transylvania and surrounding counties make to the project developers, including contracts for rights to MSW, tax abatements, and tax credits?
 - What is the expected cost impact to taxpayers of all such commitments?
 - What impacts will there be on property values of land, new homes, and existing homes?
 - What jobs are expected to be created by this project in phase I (and phase II if possible)? Is it possible to describe what different types of jobs (i.e. line sorter, process technician, process engineer, manager, etc.), and what levels of pay are built into the economic modeling?
 - Is there an assessment of what “collateral” jobs might be created by this project in Transylvania and other counties and what economic impact the project will have on the area? What impacts does the economic modeling show for potential impacts on and benefits to the county and regional economy? How does it compare to the assessment done in support of the Ecusta Trail proposal?
 - Would a community commitment to recycling and composting (zero waste?) provide more jobs and better economic/environmental outcomes than this project?
 - Who bears the financial and/or environmental liability if this plant is shut down for any reason in the future?

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- Is there a performance or surety bond required of the developers and ultimate plant operators to insure the ability to safely decommission the plant and clean up the facility and holding pond should the facility be shut down or abandoned by them for any reason?
 - If the plant is built, and the county's waste stream is diverted from the county landfill to the plant, how many jobs will be lost in the county's solid waste department?
 - How will this project, if approved, affect the overall cost of operating the county's solid waste program?
 - What tipping fees for MSW being provided by the counties involved are included in the economic modeling behind the project? What provisions for future review of and increases/decreases in tipping or other fees are included in any conditional or other agreements with counties that might provide MSW to the project? Are the county's obligated for a contractual or actual volume in these agreements?
 - Current Transylvania County ordinances prohibit acceptance of hazardous materials at the landfill... will these have to be changed to support this project? Will the county need to fund any special landfill requirements for disposal of hazardous ash?
 - What contingency plans will or must be in place for refusal/acceptance of MSW from any of the county's feedstock suppliers due to plant shutdowns for any reason; either short-term or long-term?
 - Has a cost/benefit analysis been done (or is one planned) for this proposed plant and, if it has been done, what other types of projects were considered in contrast to a biomass burning facility (i.e. solar or wind)? What were the parameters for the study? Did they include environmental, social, and health impacts to the whole region? Did the study conducted weight the costs of such a plant against the already implemented outdoor recreational tourism outreach campaign by the county?
 - Has the county considered or performed a study to consider its own county funded sorting facility (a resource recovery park?), creating the same types of jobs, reducing its own waste, and creating an increased awareness of our needs as a community to recycle, compost, and reuse such materials in opposed to paying an out of state group to use up or funding and take away potential county profits and jobs? If one has been done, who conducted it, when was it conducted, what were the conclusions, and where can the study be viewed?
 - How is this project expected to impact electricity rates for residents of the county and surrounding areas?
 - Will the operating company be publicly-owned (stockholders) or privately owned?
- h. Questions that don't "fit" in other categories above.
- What will it take for those opposed to this project to stop it?