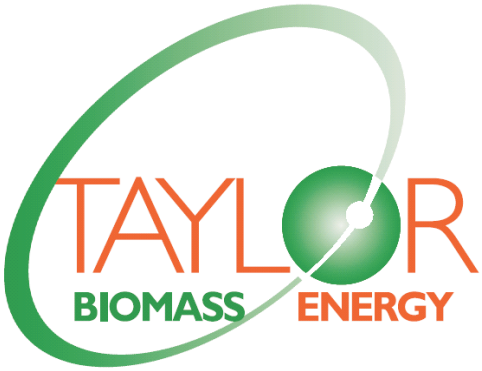

MONTGOMERY PROGRAM SUMMARY

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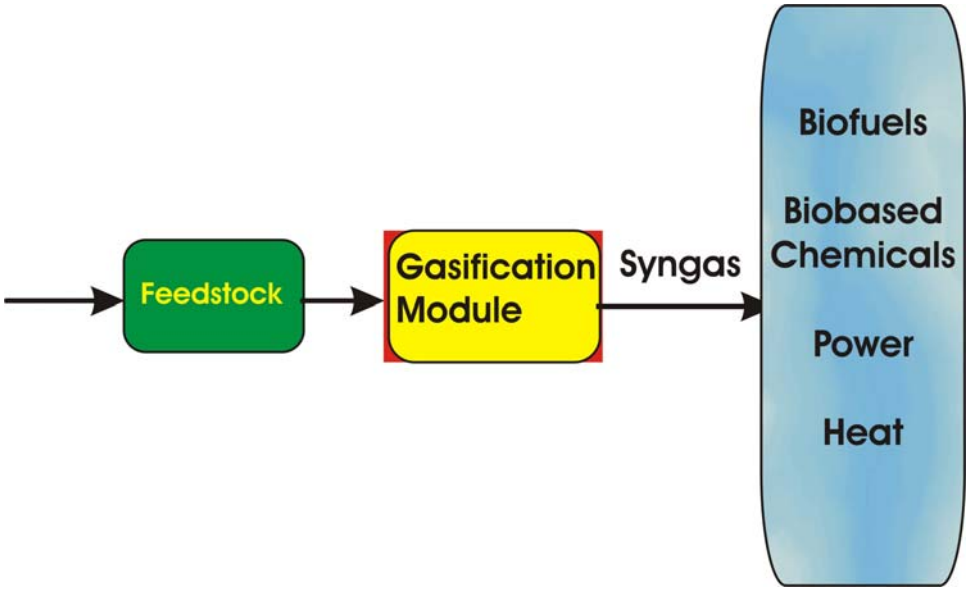
MONTGOMERY PROGRAM SUMMARY

Recent price increases for various forms of energy along with projected shortages of supply have resulted in renewed interest in alternative fuels. These situations, combined with a desire to provide sustainable energy supplies with minimal environmental impact have resulted in increased emphasis on biomass as an energy source. Biomass gasification provides a renewable basis for supplying not only direct energy products such as gaseous and liquid fuels, and electric power, but also a broad suite of chemicals such as Fisher-Tropsch liquids as well as hydrogen. Biomass provides the only non-fossil fuel route for renewable hydrogen production. A number of biomass gasification processes have been developed by the US Department of Energy and as well as foreign industry and governments. However, most of these gasification processes are not well suited for the wide range of applications needed to fully exploit the potential of biomass gasification due to their production of a nitrogen diluted, low calorific value product gas.

A medium calorific value (MCV) gas is necessary to achieve the full potential of biomass gasification for fuels, chemicals, and power production. MCV gas can be used directly as a substitute for natural gas in combustion devices such as boilers or turbines but, unlike LCV gas, has the added advantage of being useful for synthesis applications for the production of liquid fuels or hydrogen as shown in Figure 1.



The Taylor gasification process, being developed by Taylor Biomass Energy is a biomass gasification process that produces a MCV gas. MCV gas, unlike the low calorific value gas produced in air blown gasifiers, provides the ability to achieve the goal of a true biomass refinery capable of producing not only a fuel gas or power but a range of products.

THE NEED

Sustainable Biomass Supplies

To actively pursue commercial scale biomass based systems, an adequate, sustainable supply of appropriate biomass material is necessary. Biomass as a fuel source is widely obtainable throughout the United States, but, in many locations, is prohibitively expensive due to transportation costs, or local supply issues. However, if an appropriate biomass feedstock could be recovered from the abundant, primarily biomass, residues from construction and demolition (C&D) and municipal solid waste (MSW) the resources for available, cost competitive biomass could be greatly expanded.

Taylor Recycling has developed and refined a sorting and recycling process that can produce an appropriate biomass feedstock from these abundant residue materials. At the Taylor site in Montgomery, NY, this sorting and recycling process is operating on a daily basis to produce approximately 200 tons (dry basis) a day of a clean, appropriate "biomass mix" that includes wood, engineered wood materials (plywood and OSB wood), textiles, paper, food, and other unadulterated waste wood. The process also effectively removes, for recycling or disposal, painted or treated wood, metals, glass, asphalt, brick, gypsum, dirt and fines, concrete, electronics, and other materials that are not biomass or are not appropriate biomass to minimize or eliminate potential environmental issues during a conversion process.

Integration of a Biomass Supply with a Conversion Process

Due to the primary interest in so-called energy crops and traditional biomass forms, the primary focus of biomass gasification developments has been on these fuel types. In order to provide the widest penetration into the commercial marketplace, however, gasification technologies must be capable of accepting a wide range of fuels including the "opportunity fuels" developed from sorting, separating, and recycling processes such as the Taylor process. The project proposed by Taylor Biomass Energy will address this need by coupling the Taylor Gasification Process with the Taylor Sorting and Separating process.

Reduction of Useful Materials Disposed of in Landfills

The limited land available for landfill space, particularly in the north eastern US and other urban areas, has focused interest on the disposal of C&D materials and MSW for a number of states. This issue is further complicated by the reluctance of other states such as Virginia and Midwestern states, particularly Pennsylvania and Ohio, to accept these materials into their available landfill space. The result is that disposal fees continue to rise.

The Taylor Sorting and Separating process converts 97% of the mixed debris received at its Montgomery, NY site into useful products. These include metal, cardboard,

landscaping mulch, item IV aggregate, and a soil substitute used as an alternative daily cover for existing landfill operations.

Modularization of Process Elements

A significant barrier to the construction of commercial gasification based projects is the cost of construction of the various portions of the overall process. This cost is, in large part, driven by the current necessity of "stick building" most of the plant. "Stick building" is a term referring to construction and assembly of the plant structure along with most of the process elements on site. Such construction methods result in higher costs due to local labor rates and less control over the construction of individual process elements potentially resulting in longer startup and shakedown periods.

Taylor plans to modularize the construction of many of the elements of the process, particularly the gasifier and power island to help reduce the overall cost of construction. While some construction must continue to be done on site, this will be reduced to primarily foundation work and assembly of process modules. By utilizing such a modular approach, capital cost savings for the gasification island alone are expected to be reduced by up to 30%.

The planned facility will consist of three essential elements: (1) the Taylor Sorting, Separation and Recycling system to produce feed material for the gasifier, (2) a 300 ton per day (dry basis) gasifier, and (3) a power island to convert the MCV gas into 24 MW of competitively priced electric power. In addition, the facility will be constructed to provide a development platform where additional feedstocks and / or downstream unit operations such as chemical synthesis or hydrogen production can be easily evaluated.

Taylor, through its extensive evaluation process, believes that the proposed system provides the best opportunity for the production of renewable, biomass based power at large scale. Furthermore, the gasification technology provides the unique enhanced opportunity and flexibility to operate as a Biorefinery for future commercial users to produce fuels, chemicals, hydrogen, or process heat in a product slate uniquely designed for a specific location.

The Proposed Program

Taylor Biomass Energy, LLC (TBE) plans to construct an integrated biorefinery at its site in Montgomery, New York. The planned process system will integrate all of the elements to recover biomass from materials that would otherwise be landfilled as wastes (MSW and construction and demolition (C&D) wastes), convert these materials into a high value synthesis gas, and then convert this synthesis gas along with other available thermal energy from the process into ethanol and electric power. This integrated concept will demonstrate the economic and technical feasibility of a flexible biorefinery providing a range of products and utilizing a wide variety of biomass materials. The flexibility of the system to accept virtually any form of biomass and produce a variety of

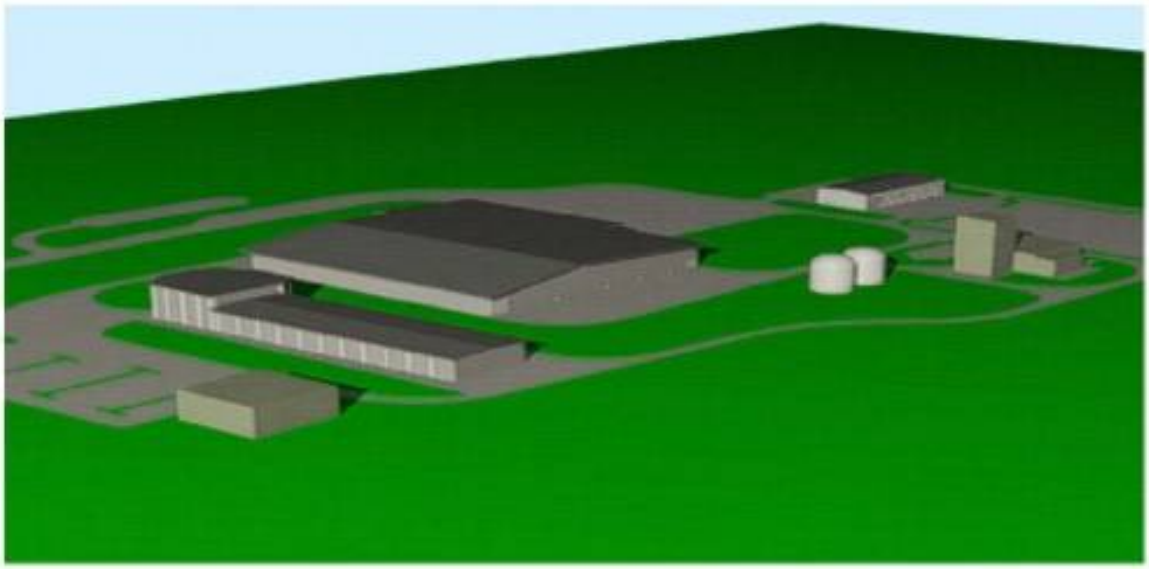
products provides the ability for rapid commercial application of the integrated process system.

The Montgomery, NY facility will consist of three essential elements: (1) the Taylor Sorting, Separation and Recycling system to produce feed material for the gasifier, (2) a 370 ton per day (dry basis) gasifier, and (3) an integrated conversion system to produce both 2 million gallons per year of ethanol via catalytic synthesis of the MCV gas and a power island to convert the MCV gas into 24 MW of competitively priced electric power.

Taylor Biomass Energy Status

Taylor Biomass Energy has invested considerable time and cost identifying the technical and regulatory path necessary to implement the integrated process at its Montgomery site. Additionally, Taylor has identified the potential market and business demands to successfully exploit the technology after successful operation of the integrated process. Discussions with local and state authorities have indicated a sincere interest in pursuing the technology. As evidence of this interest, the NYSERDA has co-funded 2 projects targeted at refining the capital cost of the process and preparing the environmental permit documents.

A Class A design effort was completed by Lockwood Greene which provides the proposed plant layout, initial module layout, process P&I diagrams, process flow



diagrams, and a preliminary power island and heat recovery design. A simplified version of the complete site layout is found in Figure 2.

The results of the Class 'A' design study were combined with additional process data and equipment layouts to prepare the necessary permit documents for the planned facility. These permit documents have been submitted to both the Town of Montgomery and the State of New York for review. Approval of the documents and issuance of the Permit to Construct is expected during the 2nd quarter of 2008.

Environmental Benefits

Reduction of Greenhouse Gases

Landfills themselves contribute to environmental deterioration as the organic material contained in these wastes "composts". Emissions of greenhouse gases from landfills amount to approximately 2.5 pounds for every pound of carbon in the landfill due to the fact that a large percentage of the emissions are in the form of hydrocarbons. By converting the organic material into sustainable energy, these emissions can be virtually eliminated, resulting in significant reductions in greenhouse gas emissions. By implementing the integrated Taylor Biomass Energy Solution in the targeted urban centers in the US alone (those with populations of 250,000 or more), over 5 million tons of greenhouse gases can be eliminated from the atmosphere (expressed as CO_2 equivalents).

Additional Environmental Benefits

The limited land available for landfill space in New York State has resulted in the transport of thousands of tons of materials to landfills in other states. The transport of these materials over long distances contributes to significant deterioration of the environment by adding over 1 ½ pounds of air pollutants such as nitrogen oxides, volatile organic compounds, and particulates to the air for every 100 miles of travel by truck. The installation of one integrated Taylor system of the size proposed for Montgomery, NY will reduce emissions of these pollutants by approximately 140,000 pounds annually by eliminating the transport of wastes alone.

When compared to conventional approaches to energy recovery from residue derived fuels, other environmental problems caused by the inherent properties of the technologies themselves arise. In incineration and direct combustion, for example, emissions of criteria pollutants such as nitrogen oxides (NOx), carbon monoxide (CO), particulates, and volatile organics (VOC's) can be quite high due to the process conditions found within these conversion systems. Depending on the contaminants fed along with the residual materials, sulfur oxides (SOx) can also be formed, even though sulfur is typically not a contaminant found in biomass. Other more hazardous materials such as dioxins can be produced from chlorine containing species in the incoming fuel. Gasification can improve the situation by converting the incoming material into a combustible gas that can be cleaned to remove contaminants such as nitrogen containing compounds (preventing

fuel bound nitrogen producing NOx), sulfur compounds (reducing SOx by removal of H_2S from the product gas), and particulates prior to energy recovery improving overall process emissions. Furthermore, by incorporation of advanced NOx reduction technologies such as SCR systems, emissions from the proposed IGCC system will be substantially lower than required in non-attainment areas.

The synthesis step will be designed by Abengoa Bioenergy, a worldwide leader in the production of ethanol. In the planned Montgomery plant, the synthesis gas produced by the gasification process will be catalytically converted to ethanol which will then be refined prior to its sale. This portion of the process will be constructed in such a manner as to allow for easy modification so that the synthesis step, the least developed element of the biorefinery, can be readily improved to further enhance overall process efficiencies. An optimum catalyst formulation will be identified and then commercialized with program partner Süd Chemie.

The Taylor Team

Taylor has selected an experienced team capable of designing, constructing, and operating the integrated facility coupling the Taylor Sorting and Separating process, the Taylor Gasification Process, and the Abengoa ethanol synthesis system. The program partners are Taylor Biomass Energy, LLC (Taylor Sorting and Separating Process (recycling process) and Taylor Gasification Process), Abengoa Bioenergy (ethanol production), Süd Chemie (commercial catalyst preparation), O' Neal, Inc., (detailed engineering), and Sanders Brothers (modular construction).