

# *Ohio River Clean Fuels, LLC*



*Baard Energy, LLC*

## **Project Summary**

**Coal & Biomass to Liquids (CBTL)**

**53,000 bpd Plant**

**Wellsville, Ohio**

**Prepared for  
Ohio EPA and Army Corp of Engineers**

**July 10, 2007**

## Executive Summary

Baard Energy, L.L.C., through its affiliate Ohio River Clean Fuels, L.L.C. (ORCF), has commenced development of a 53,000 barrel per day (bpd) Coal & Biomass-to-Liquids (CBLT) facility at Wellsville, Ohio (The Project). The Project will use both coal and biomass as feedstock and will produce ultra low sulfur diesel, jet fuel, liquid propane gas (LPG) and naphtha. Baard commenced development of the Project in 2003. Highlights of the development accomplishments to date appear below.

Baard has partnered with the Columbiana County Port Authority (CCPA) to secure more than 500 acres at a site located at Milepost 49.5 on the Ohio River. CCPA has secured an option to purchase the site and has entered into a Memorandum of Understanding with ORCF whereby it agrees to enter into a long term lease for the purpose of developing the Project. The site is located near abundant reserves of Northern Appalachian Eastern Bituminous coals and hardwood wood waste and other biomass. The project will have direct access to river barge, rail, and truck transportation, as well as direct access to nearby petroleum pipelines for distribution of synthetic transportation fuels.

Baard has assembled a world-class technology team for the design and construction of the Project. The consortium of Black & Veatch and Uhde working with Idaho National Laboratory has completed work under subcontracts to the ORCF to establish a Fischer-Tropsch plant reference design for conceptual engineering (pre-FEED), plot plan layout, technology sizing and validation, and plant integrations.

- Main Technology Providers – Shell/Uhde, Linde, Syntroleum
- Principle Managing Contractor (PMC) – AMEC Paragon
- Facility Permitting – Managed by CH2M Hill and Civil & Environmental Consultants
- Feedstock and Off-take Agreements – Confidential
- Financing – Confidential

The Project will consist of three production trains built in concurrent but distinct phases. Each train will consist of two gasifiers feeding into one Fischer Tropsch catalytic reactor. A single hydrocracker and hydrotreater (upgrader) will be constructed during the first phase and will have sufficient capacity to handle the output from all three trains.

Baard Energy commenced development of the Project in 2003. To date, we have (1) secured the Wellsville, Ohio site which sits on the Ohio River with access to two rail lines, (2) selected the major technology providers, (3) selected the EPC contractor, (4) initiated the permitting process, (5) negotiated feedstock and offtake agreements, (6) hired a debt advisor, and (7) identified a short list of equity providers.

## Offtake Agreements

It is well known that the Department of Defense has committed significant resources towards the certification of fuels which contain significant fractions of synthetic jet fuel (50%) as will be produced by Ohio River Clean Fuels. The Company has been in negotiations with DOD for the sale of up to half of the Project's output. The Defense Energy Supply Center has received significant information on the Project as the DOD has continued its internal development to utilize synthetic fuels.

The Company is also exploring traditional commercial offtake agreements as well. The Project is strategically located on the Ohio River and will produce a product that is superior in many ways to traditional petroleum products. The Company has discussed off-take strategies with several large petroleum-based businesses who have expressed interest in acquiring significant volumes of synthetic fuels under long term agreement. These products include FT Wax, FT Diesel and to a lesser degree, FT Naphtha. Furthermore, the Company has received contingent commitments from several large commodity trading firms which have indicated willingness to enter into an off-take agreement for the synthetic fuels produced by the Project.

## Government Support of Project

### *Federal Support*

**The Energy Policy Act of 2005.** EAct 2005 provides a number of incentives directed towards deployment of Coal Gasification and Clean Fuels production. See the table below for EAct 2005 summary of incentives. Title XVII authorizes DOE to provide 80% Federal Loan Guarantees for qualified projects; the Project has assumed that self-funding Loan Guarantee policies will be implemented. The Company is already in discussions with the DOE and feels that the Project qualifies for the Loan Guarantee Program.

**Highway Transportation Bill.** The Highway Transportation Bill of 2005 (HR 3) provides a \$0.50 per gallon Excise Tax Credit for Fischer-Tropsch Fuels. The current excise tax credit is due to sunset in 2011; there are at least three bills currently being drafted in Congress to extend the ETC until 2020. (Rep. J. Bunning (KY) "Coal-to-Liquid Fuel Promotion Act of 2006".)

**President Bush's Advanced Energy Initiative.** The energy policy mandated by the President to enable greater energy security while striving to protect and improve the environment and to improve the nation's economy is at the heart of the Project, which will assist in eventually reducing and eliminating this country's dependence on foreign oil. This Project will be a "first mover" of this important Coal-to-Liquid technology in the US, and prove to the marketplace that this technology can be successfully used in this country, enabling the development of an entire new industry.

## ***State and Local Support***

The Company has already received strong indications of support from both local and state officials in Ohio. It is anticipated that the State of Ohio and Columbiana County will be strong financial supporters in the development of this important economic development project. The Ohio Air Quality Development Authority ('OAQDA') has already induced the Project giving it the ability to issue \$4 billion in Project debt, an amount which should be sufficient to complete all current and future phases of development. This debt issuance by OAQDA conveys meaningful operational savings in the way of various tax exemptions for the Project. The Company, CCPA and the Ohio Department of Development (ODOD) are also currently discussing various other incentive strategies to enhance the projects commercial viability.

ORCF was recently induced by the Ohio Air Quality Development Authority (OAQDA) for the issuance of bonds for the financing of the Project. (See Section 5.) The OAQDA will act as issuer for the Project's debt for both the senior and subordinated debt funding. The OAQDA has issued over \$5 billion in debt during its existence.

Use of OAQDA bonds provides a 100 percent exemption from the following taxes:

- Tangible personal property tax – All personal property, located and used in business in Ohio, including machinery, equipment, and inventories, purchased or acquired in relation to an air quality project is exempt from tangible personal property taxes and assessments as long as the bond or note issued by OAQDA is outstanding.
- Real property tax – Any real property comprising an air quality project is exempt from real estate property taxes and assessments as long as the bond or note issued by OAQDA is outstanding.
- Corporate franchise tax – The Ohio corporate franchise tax has two alternative bases: a net worth base and a net income base. Corporations are required to determine their tax liability under each base and pay the higher of the two. OAQDA exempts the value of all property comprising an air quality project from a corporation's calculation of its net worth base as long as the bond or note issued by OAQDA is outstanding. The net worth base is determined by computing the total book value of the corporation's capital, surplus, undivided profits, and reserves (unless excluded by law).
- Sales and use tax – All tangible personal property comprising an air quality project purchased or acquired specifically for that project is exempt from the state and local sales and use tax levied on the transfer or sale of that tangible personal property. The state sales tax rate is set at 5.0%. The Columbiana County sales tax rate is set at 1.5% for all-in tax rate (State and County) of 6.5%.
- Interest income on bonds and notes issued by OAQDA – Any income generated from the ownership of bonds and notes issued by the OAQDA, the transfer of bonds and notes, and any profit derived from the sale of those bonds or notes is exempt from Ohio's state income tax and, in some cases, federal income tax.

## Financing Plan

### *Development Capital and Project Equity*

Baard Energy has self-funded all development activities to date. The Company anticipates that it will need an incremental [REDACTED] of development capital to cover the following near-term expenses:

- Permitting (estimated to be [REDACTED])
- Preliminary Engineering (estimated to be [REDACTED])
- Prepaid Technology Licenses (estimated to be [REDACTED])
- Other Development Expenses (estimated to be [REDACTED])

Baard is currently in final negotiations with several firms who have offered to participate in the Project through an investment of development capital and the equity necessary for financing the project. Our current estimate for concluding these agreements is September, 2007.

### *Project Debt*

The Company has hired Fifth Third Securities, Inc. as its financial advisor to structure and arrange Project debt financing. Fifth Third Securities has arranged for the OAQDA to issue the necessary indebtedness for the Project and has been integral in the development and submission of the Project's application for the Department of Energy Loan Guarantee submission.

On December 31, 2006 the Company submitted its application in response to the US Department of Energy Loan Guarantee Solicitation Announcement dated August 8, 2006. DOE's Solicitation for loan guarantees was issued to encourage early commercial projects in the United States that employ new or significantly improved technologies and promote the President's Advanced Energy Initiative. At the time of the solicitation, DOE intended to limit the total dollar amount of loan guarantee commitments to no more than \$2 billion. On February 1<sup>st</sup>, 2007 Deputy Energy Secretary Clay Sell said that the DOE will request a total of \$9 billion in loan guarantees as part of the President's 2008 budget.<sup>1</sup> ORCF applied for a loan guarantee of more than \$1.2 billion which represents approximately 80 percent of Phase 1 Project costs. According to the rules of the DOE Solicitation, applicants can request a federal loan guarantee to cover up to 80 percent of a project's total capital costs (excluding loan guarantee insurance premium). The Solicitation requires holders of the guaranteed Senior Debt to hold non-guaranteed subordinated debt for up to 20 percent of a project's capital costs.<sup>2</sup> The ORCF loan application assumed approximately \$300 million in subordinated debt.

The application submitted by ORCF at the end of 2006 was part of the pre-application process. It is expected that DOE will develop a short list of projects which will proceed

---

<sup>1</sup> Wall Street Journal Online, February 1, 2007.

<sup>2</sup> Loan Guarantee Solicitation Announcement, US DOE Loan Guarantee Program Office, Issued August 8, 2006.

to the final application process. Although it is not clear when this will happen, Deputy Energy Secretary Clay Sell “said the DOE may be able to start rolling out the loan guarantee projects in the second quarter of the year.”<sup>3</sup>

In the event that the Project is not successful in securing a DOE loan application or the timing of the loan application process precludes an expeditious development process, the Company has been following a parallel track to fund the project under traditional debt financing for the Project.

## **Management Team and Project Partners**

The following describes some of the major partners and technology providers the Project is able to reveal at this time. Matters related to confidentiality agreements and other business considerations prohibit us from revealing all participants until such time these participants are prepared to make public announcements.

### ***Baard Energy***

The Company’s sole Member is Beard Clean Fuels Ohio River, L.L.C., a Delaware limited liability company. The Sponsor, Beard Energy, L.L.C., an affiliate of the Company, will be assisted in the development of this facility by another affiliate, Beard Clean Fuels, L.L.C. Beard Clean Fuels, L.L.C. is a successful developer of FT liquids production facilities and plants producing other alternative fuels. The same team has already developed an 88 million gallon per year Ethanol plant in Ravenna, Nebraska and a 55 million gallon per year Ethanol plant in Coshocton, Ohio. Its affiliates have successfully developed over 1,200 MW of electrical generation facilities in the last twenty years and built a retail electric marketing business in Michigan, Illinois, and Texas.

The Project will contract with Beard Clean Fuels, L.L.C. for O&M services. Beard Clean Fuels has management personnel experienced in all aspects of plant operations.

### ***The Columbiana County Port Authority***

The Columbiana County Port Authority (CCPA) will act as the nominal owner of the ORCF facility under a capital or mortgage style lease format. CCPA currently owns the Site for the ORCF Project. ORCF will claim all of the benefits of ownership, including depreciation. With CCPA acting in this capacity, all hard building materials for the Project will be exempt from State of Ohio Sales Tax.

CCPA promotes economic development within Columbiana County and commerce on the Ohio River. CCPA also develops industrial parks and works with local and foreign companies on retention and expansion as well as new plant locations offering a full range

---

<sup>3</sup> Wall Street Journal Online, February 1, 2007.

of incentives, which include statewide tax credits, local Enterprise Zone Tax Abatements and local utility incentive programs.

### ***Uhde GmbH***

Uhde GmbH is a member of the ThyssenKrupp conglomerate. This conglomerate has 193,000 employees with annual revenue of \$46 billion.

Uhde is one of the world's major EPC, technology-driven engineering contractors, employing approximately 3,900 staff worldwide with revenues in 2005 of more than \$ 1.3 billion. The company is currently delivering a number of projects valued at over \$ 500 million. Fields of expertise include chemicals, petrochemicals, environmental protection, oil and gas processing, and coal processing/gasification.

Uhde has successfully completed over 2,000 projects around the world, many on a turnkey basis, in more than 80 years of existence. In addition to the wide range of company owned processes and patents, Uhde has access to many first class processes in related fields of activities, which are owned by internationally renowned licensors. This combination of Uhde and third party technologies adds up to over 300 processes that Uhde can offer, which together with Uhde's capabilities and know how in project execution, gives customers the opportunity to co-operate with one competent partner from project evaluation and process selection through project execution.

### ***Black & Veatch***

Black & Veatch ('B&V') is one of the largest and most diversified engineering companies in the United States. Established as a private partnership in 1915, B&V now has a total staff of over 7,000 employees in offices worldwide. The professionals at B&V apply leading-edge technology to projects in the areas of power generation, transmission and distribution, water and wastewater treatment, solid waste management and resource recovery, hazardous waste, industrial systems and facilities, government projects, architecture, and financial and management consulting. In terms of business volume, B&V has consistently ranked among the largest design companies in the United States since 1971 (as determined by Engineering News Record), and honored as the worldwide leader in project awards for electricity generation for the last 10 years (in accordance with the McCoy Power Reports).

B&V has the expertise necessary to perform all stages of a gasification or IGCC project, including feasibility assessments, design, procurement, construction management and permitting. B&V has been active in providing engineering services for the evaluation and development of gasification and IGCC technology since 1980. B&V has designed and performed feasibility studies for numerous gasification and IGCC projects using various gasification technologies. Recent project experience for B&V in 2005 and 2006 amounts to engineering design and feasibility studies involving NGCC and IGCC power generation, synthetic fuels plants and CO2 sequestration.

### ***AMEC Paragon, Inc.***

AMEC Paragon has performed engineer and project management services on behalf of the Owner for a wide variety of complex projects worldwide. In addition, AMEC is a leader in the emerging “midstream” areas of coal-to-liquids, gas-to-liquids, liquefied natural gas (LNG), and natural gas liquids (NGL). AMEC Paragon’s relationship with Syntroleum Corporation is considered invaluable to the Ohio River Clean River Project. Examples of AMEC Paragon services that are particularly relevant to the Project are detailed below:

- Sino Global International – Planned Coal-to-Liquids Project: AMEC Paragon is slated to provide project management, engineering, vendor evaluation, quality control, planning and estimating, project controls, documentation, fabrication and construction planning, and technical support services.
- Pluspetrol – Owner’s Engineer for Camisea Upstream Facilities Project: AMEC Paragon supported gas liquids, and liquefied petroleum gas development in Peru.
- BP – Extensive Services for the Mardi Gras Transportation System which serves the development of five deepwater fields in the southern Green Canyon and Mississippi Canyon areas of the Gulf of Mexico.
- Shanghai Ethylene Cracker Complex (SECCO), a world-scale SECCO petrochemical development comprising five major petrochemical plants, which have an ethylene capacity of 900,000 MTPA.
- Chevron – Area “A” Gas Management Program: AMEC Paragon is supporting several projects designed to eliminate routine natural gas flaring in Angola’s offshore Takula and Malongo areas and the onshore Malongo Terminal complex.

The Company is currently discussing the potential role of the AMEC Paragon and is expecting to establish a contract for AMEC Paragon to provide Owner’s Engineer services throughout the Project FEED study, Project EPC phase, and commissioning and start-up.

### ***Idaho National Laboratory (Battelle Energy Alliance)***

Idaho National Laboratory (INL) is one of eight major laboratories established by the U.S. Department of Energy to support research and engineering sciences addressing the nation’s energy and security needs and challenges. INL employs a workforce of over 3,000. INL has been traditionally referred to as the “Engineering Laboratory” because it has executed several major projects for DOE over its 50 year existence as a Federally-Funded Research and Development Center. The current Management and Operating (M&O) contractor of INL is Battelle Energy Alliance (BEA). Previous M&O contractors include Bechtel, Lockheed-Martin, Westinghouse, and EG&G.

INL has had a long-running participation in fossil energy research and engineering—particularly clean coal and power production. A cross-cutting team of engineers and scientists is conducting research, design, and testing of clean coal technology, gasification and IGCC advanced concepts, and synthetic fuels and chemical plants. This team is supporting several U.S. companies with the development of gasification-related energy conversion projects under DOE-approved Work for Others and Cooperative Research and Development Agreements (CRADA). Much of this work is being

performed using an advanced, modular construction, IGCC/Fischer-Tropsch process model to investigate design integration and plant optimization cases. Over 7 man years of effort and approximately \$1 million has been spent developing and validating these codes.

INL staff supporting the Project has advanced degrees in combustion and gasification with several years of experience in process design and operations at U.S. refineries and chemical companies. This group helped DOE develop steam reforming gasification technology for radioactive wastes. A \$200 million project to build the first production scale fluidized-bed steam reforming gasifier is underway in Idaho. Members of the team have obtained several patents for DOE in clean coal and gas separations technologies.

### ***Fifth-Third Securities, Inc.***

Fifth Third Securities, Inc. ("FTS") is acting as the financial advisor to ORCF to structure, negotiate and arrange the financing for the CTL Project. FTS will advise ORCF on all matters related to the proposal and execution of the financing. FTS will also privately place the senior and subordinate debt as well as the project equity.

FTS is a subsidiary of Fifth Third Bancorp. Fifth Third Bancorp is a \$95 billion financial services organization headquartered in Cincinnati, Ohio. FTS is committed to providing public finance, financial advisory and underwriting services to issuers throughout the Midwest, and the other states in our corporate market area. In 2005, FTS underwrote almost \$8 billion of municipal debt.

### ***The Ohio Air Quality Development Authority***

The role of the Ohio Air Quality Development Authority is to provide for the conservation of air as a natural resource of the state, to prevent or abate the pollution of the air, to provide for the comfort, health, safety and general welfare of all citizens of the state and to assist in the financing of air quality facilities for industry, commerce, and research. Its primary purpose is to contribute to cleaner air in Ohio by assisting Ohio businesses to invest in air quality through the provision of conduit financing for the purchase, construction, and/or installation of air quality facilities.