



BLACK & VEATCH



NEWS For Immediate Release

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**BLACK & VEATCH AND ENERGY PRODUCTS OF IDAHO STUDY REVEALS
FEASIBILITY OF BIOMASS GASIFICATION RETROFIT**

Kansas City, Mo. (October 14, 2002) – Black & Veatch and Energy Products of Idaho (EPI) announced today the results of a study that examined the technical feasibility and economic viability of biomass as a supplementary fuel source in existing power plants. The study, which was conducted in conjunction with the Nebraska Public Power District (NPPD), has resulted in the identification of a promising green power alternative that uses biomass gasification. Employing biomass gasification at existing power plants can improve air quality and provide green power at a considerably lower cost compared to the development of a new biomass power plant.

Biomass gasification technology uses any material of biological origin, such as wood waste, agricultural residues, and yard waste as fuel converting the energy of the solid biomass waste into a low-Btu gas, or “biogas.” The study has concluded that the substitution of biogas for a percentage of coal can significantly reduce emissions of nitrogen oxides (NO_x), sulfur oxides (SO_x), mercury, carbon dioxide and other pollutants, particularly when the biogas is used in a “reburn” configuration. Another potential advantage is that renewable biomass fuels can be purchased at low cost, which enhances the profitability of existing fossil fuel assets.

“This technology represents one of the lowest-cost renewable energy sources we have evaluated to date. That alone should make it an option for power providers to consider when they develop their strategic renewable energy plans,” said Black & Veatch Project Manager Ryan Pletka. “In addition, the technology has the potential to provide substantial benefit to existing coal plants in terms of reduced NO_x, SO₂, mercury and other emissions. Other benefits include improved boiler operation, maintenance and availability, and lower fuel costs.”

The availability of suitable biomass fuel in the vicinity of a project site is crucial to the feasibility and continued operation of the system. Projects can also be affected by new and existing emissions regulations, and the status of renewable energy incentives available from federal and state governments. Overall, it is believed that the incentives for projects of this scope can provide improved environmentally safe operations that would earn additional revenue for the owner.

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“EPI’s biomass gasifier add-on for coal-fired boilers is a unique system that combines the production of green, renewable energy with effective NO_x reduction in a single unit,” said EPI Business Development Manager Pat Travis. “The normal problems and disadvantages inherent with directly co-firing biomass in coal boilers, such as excessive wear on pulverizers, fouling and slagging of tubes, ash contamination, etc., are completely eliminated or minimized through the use of EPI’s gasifier. The use of biomass gasification with coal-fired boilers creates a true win-win situation for the utilities and the environment.”

Black & Veatch and EPI evaluated the technical feasibility and economic viability of the system as a biomass gasification retrofit at the NPPD Sheldon Station. The biomass gasification system was sized to displace about 17 percent of the boiler coal heat input, which produces the equivalent of about 18 MW of green power. The estimated cost for the biomass gasification system could vary from \$8 to \$13 million, depending on options for biogas cleanup and modifications to the existing boiler systems. NO_x reduction from the reburning of the biogas was projected to be about 40 percent. EPI believes that, depending upon individual boiler configurations and operating parameters, significantly higher reductions of NO_x are possible.

The analysis featured the use of VISTA™, an evolution of the widely used Coal Quality Impact Model (CQIM™) that Black & Veatch developed for The Electric Power Research Institute (EPRI) in 1989. The VISTA analysis provided a complete examination of the effects of the biomass gas on the existing unit’s performance, availability, fuel costs, operation and maintenance costs and other parameters. This has been combined with other information to develop a comprehensive economic model of the proposed project. The model found that the strongest impacts on project economic viability are the difference between coal and biomass fuel cost, availability of credits for NO_x reduction, and availability of credits for renewable energy.

The study was funded by the U.S. Department of Energy (DOE) through the Western Regional Biomass Energy Program (WRBEP). Copies of the study can be downloaded from the EPI Web site at www.energyproducts.com.

About Black & Veatch

Black & Veatch Corporation is a leading global engineering, construction and consulting company specializing in infrastructure development in the fields of energy, water and information. Founded in 1915, Black & Veatch serves its clients with conceptual and preliminary engineering services, engineering design, procurement, construction, financial management, asset management, information technology, environmental, security design and consulting, and management consulting services. Headquartered in Kansas City, Mo., the employee-owned company has more than 90 offices worldwide. Black & Veatch is ranked 80th on the *Forbes* “500 Largest Private Companies in the U.S.” listing for 2001. The company’s Web site address is www.bv.com.

About Energy Products of Idaho

With nearly 30 years of system design and supply experience and over 80 fluidized bed energy system installations, Energy Products of Idaho (EPI) has quietly established itself as a leader in solid fuel

thermal oxidation and gasification technologies. In 1973, EPI provided the first fluidized bed combustion (FBC) system in the United States to convert waste biomass into usable energy. In 1981, EPI performed the first retrofit of a stoker-fired boiler to fluidized bed. The first commercial fluidized bed biomass gasification power plant was built by EPI in 1985. The company continues to pioneer disposal of difficult waste materials, providing efficient, economical and environmentally favorable “green energy solutions.”

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