

Using Coal Strategically

PROVIDING PETROLEUM PRODUCTS AND POWER

By Robert C. Kelly

News Flash >>

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**COAL-TO-LIQUIDS
PROJECT TO YIELD
ELECTRICITY**

DKRW Energy LLC, through its wholly owned subsidiary Medicine Bow Fuel & Power LLC, has signed an option agreement with Arch Coal, Inc. to acquire undeveloped coal reserves in the Carbon Basin of Wyoming to provide the feedstock for a coal-to-liquids facility to be located near Medicine Bow, Wyo.

If the option is exercised and DKRW Energy elects to proceed with development of the property, a subsidiary of Arch Coal would act as operator of a new underground coal mine.

Achievement of this strategic milestone helps pave the way for the continued development of the coal liquefaction facility that will export 350 megawatts of power from an integrated coal gasification unit.

TO MOVE BEYOND current energy constraints, we will need to think beyond the dots in the next 20 years. Rapidly growing demand in Asia, coupled with the nation's shrinking geological reserve base, is building up enormous pressure in the fuel and power markets and driving up oil and gas prices. As we discover that replacing oil and gas reserves is becoming increasingly more difficult and environmental constraints push us in the direction of renewable energy technologies, we are being forced to re-examine the ways in which we supply energy to the American economy.

What does the declining oil and gas reserve base in the United States really mean? If we continue in our current mode of operation, by the year 2025 we will be importing almost two-thirds of the country's refined petroleum products as well as an increasingly larger share of natural gas. If we continue to rely on conventional oil and gas reserves to power the domestic economy in the area of transportation fuels and power generation, we will be subject to the inevitable price shocks that accompany over-dependence on Middle Eastern reserves for our energy future.

Domestically produced coal can play a major role in bridging the American economy to a sustainable energy future. This can be done using coal technologies that although proven are just emerging as competitive alternatives in the new energy environment, such as coal gasification and Fischer Tropsch (FT) liquefaction. The combination of these technologies, along with conventional methods of producing electric power from combined cycle power generation and increasing oil production from tertiary recovery of oil from old reservoirs using liquefied carbon dioxide, can play a major role in providing fuel and power produced from domestic resources over the next several decades.

The United States has substantial domestic coal resources that can be used to produce refined petroleum products using gasification and FT technology. The process involves gasification of the coal, the clean-up of the syngas, liquefaction of the syngas, and production of electric power from the residual tail gas with gas turbines. But what some may not realize is that neither gasification

nor liquefaction is a new technology. In fact, the Germans used coal gasification during World War II to produce significant quantities of diesel fuel, and the South Africans have produced significant quantities of refined petroleum liquids from coal since the 1950s.

Using these technologies could be significant for the United States. With conversion ratios based on current technologies, the U.S. Department of Defense recently calculated that the U.S. coal reserves are equivalent to 800 billion barrels of oil — more reserves than exist in the entire Middle East.

Many experts believe the ability to use these technologies will soon emerge onto the commercial scene in the United States. Houston-based DKRW Energy LLC is currently putting together a project to do just that. The project will utilize 6 million tons of coal a year from the Carbon Basin in Wyoming as the primary feed stock for a coal liquefaction facility located near Medicine Bow, Wyo.

The coal reserves will be gasified using currently available gasification technologies to produce a large stream of syngas. The primary components of the syngas include carbon monoxide, carbon dioxide and hydrogen.

The plant would also produce about 650 megawatts of power from the steam given off by the exothermic processes associated with gasification and the residual tail gas coming from the final stages of the FT reactor. The project would sell this power to the nearby utilities that would have an interest in acquiring power from an Integrated Gasification Combined Cycle "IGCC" facility such as this on competitive terms and conditions.

The diesel fuel and naphtha from the project will be evacuated by pipeline into one of the nearby petroleum product pipelines. The primary market for the liquids will be the Denver market, which utilizes diesel from other refineries in the area and imports from Canada and the Gulf Coast. ☒

Robert C. Kelly is a partner at DKRW Energy LLC and co-managing partner of the Medicine Bow Fuel and Power Project.

Civil Engineer

DESCRIPTION OF DUTIES / RESPONSIBILITIES:

- Technical production
- Develop project cost estimates & specifications
- Prepare engineering studies and reports
- Project Management, including budget details, financial projections
- Some travel may be required

POSITION QUALIFICATIONS:

- BS degree in Civil Engineering required, PE preferred or able to obtain professional licensing within 6 months
- 5 - 10 years design experience
- Highway or street design and drainage design experience required
- Water system design experience and system hydraulics, a plus
- Sanitary sewer system design experience and lift station hydraulics, also a plus
- Working knowledge of MS Office and AutoCAD required for preparation of design reports and specifications

Trade Control Analyst

Trade Control Analysts are primarily accountable for management reporting, controls and financial analysis of US trading books. The position will work closely with traders & operators, and the back office functions that provide accounting, tax and other services to its US operations. This posting covers open positions on the Crude Trade Control team.

REQUIREMENTS:

- Business experience in financial accounting and/or control
- Downstream Oil supply or trading experience preferred
- Knowledge of futures and options would prove helpful
- Financial Accounting skills
- Strong Analytical Skills - the ability to grasp and communicate complex trading transactions into their economic effects
- Ability to perform under pressure/multitask in a deadline-oriented team environment

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