

E3 Consulting® Helps Astoria Energy Light Up New York in 2006

The Phase I Astoria Energy Project achieved commercial operation under its Power Purchase Agreement with Consolidated Edison Company of New York, on May 1, 2006. This is the first new large power plant that has been built near New York City in 25 years. Construction on the 500 megawatts (MW) electric generating facility commenced on April 16, 2004, making the overall construction period a very short 24 months.

To address power shortages in and around New York City, the local utility, Consolidated Edison Company of New York Inc. (“ConEd”) executed a power purchase agreement with Astoria Energy, LLC. Astoria Energy agreed to construct the first of 500 MW of a planned 1,000 MW electric generating facility. The finance package of approximately \$800MM was a refinancing of a prior Term B Loan transaction. Of note, the refinancing took place while the project was under construction. E3 Consulting® provided independent engineering services in support of the underwriting of the financing and subsequent successful syndication of the loans. E3 also provided Astoria and its lenders construction monitoring services during construction and start-up of the project.

The Astoria Project was particularly challenging from the construction perspective due to the need to redevelop a brownfield site and the limited construction laydown and staging area. Construction challenges included: the complete demolition and removal of the fuel oil terminal that previously existed on the site; installing two heat recovery steam generators that were delivered to the site completely prefabricated; the installation of prefabricated pipe racks fully loaded with insulated pipe; the use and installation of an air cooled condenser that was delivered to the site prefabricated into easily erected modules; completing the project using an engineering, procurement and construction (EPC) contract; and utilizing 100 percent New York union labor. The project was completed on schedule and within the financing budget. The project has been dispatched on a daily basis by ConEd since commencing commercial operations.



Astoria from ConEd looking southwest.

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E3 Consulting® Announces Closing on Gas Storage Project

Huge Louisiana salt caverns to hold 24 billion cubic feet

E3 Consulting® announced the completion of due diligence for its clients and closing on financing for a salt cavern gas storage facility in Louisiana with a capacity of 24 billion cubic feet (“bcf”).

When filled and fully operational in 2009, the inland facility (consisting of three storage caverns) is expected to help stabilize natural gas supplies and provide protection against gas supply interruption because of hurricanes and other natural disasters, according to Andrew Franks, Managing Director and a gas expert at E3.

The facility will connect pipelines in the area that previously had limited or no interconnection, reducing the amount of interstate pipeline construction needed to support peak use. Benefits of the facility include high deliverability—that is, gas can be moved in and out quickly in support of trading initiatives. Construction started in November of 2005 and filling will begin early in 2007.

The project is being developed by Pine Prairie Energy Center LLC, which is indirectly owned 50 percent by

Plains All American Pipeline LP, and 50 percent by Vulcan Capital. The initial financing from Sun Trust Robinson Humphrey was \$320 million. The deal closed on May 9, 2006.

The project, in Evangeline Parish in central Louisiana, is the newest gas storage facility in the U.S. The nation currently has working gas capacity of about 3,000 bcf.

Each of the three salt caverns measures 300 feet wide by 1,500 feet deep. “Each cavern is approximately the size of an Empire State Building underground,” said Franks.

E3 provided a comprehensive due diligence review of the geology, surface facilities design, construction, capital cost, schedule, environmental and financial modeling aspects of the multi-year project.



For further information please contact Andy Franks 303-762-7065 or by email at andy.franks@e3co.com.

E3 Consulting® Assists Diné Power Authority in the Navajo Transmission Project and the Desert Rock Energy Project

Sithe Global Power, LLC has proposed the construction of the 1,500 MW Desert Rock Energy Project (DREP), a hybrid dry cooled coal-fired electric power-generating plant south of Farmington in northwestern New Mexico. The project is being developed with Diné Power Authority (DPA) which is an enterprise of the Navajo Nation chartered to promote and facilitate the development of energy projects on the Navajo Nation. The Navajo Nation, through the DPA, has the option to become an equity owner in DREP.

DREP consists of up to two 750 MW supercritical coal boilers and steam turbines with an efficiency of over 41 percent. The project would be fueled by low sulfur coal mined from the adjacent BNCC Navajo Mine, and will provide electrical power to utilities in the Southwest. The project will be equipped with a natural draft dry cooling tower. Water consumption is reduced by 80 percent for this type of cooling versus a typical wet

cooled plant. Construction on DREP and the Navajo Transmission Project (NTP) is anticipated to begin in the second quarter of 2007.

DREP is expected to have the lowest emissions permitted to date in the United States by combining a supercritical coal boiler, advanced flue gas treatment and low sulfur Navajo coal. The project will control over 90 percent of NOx emissions and 98 percent of SO2 emissions. The project will also have the best technology to control over 80 percent of the mercury emissions. The project will be designed to have a heat rate of less than 8,700 Btu/kWh, 15 percent more efficient than similar sub-critical plants.

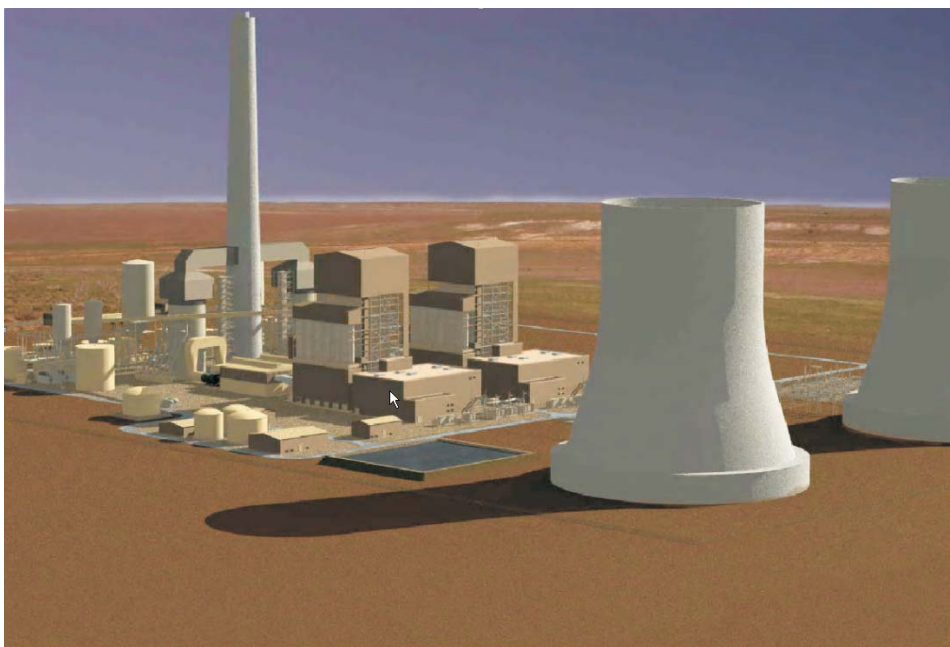
The NTP Segment 1 is being proposed to allow DREP to transmit energy to the Arizona, California and Nevada markets. NTP Segment 1 will be 190 miles 500 kV transmission line from the Shiprock substation near

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DREP in northwestern New Mexico to the Red Mesa substation in northern Arizona. The Navajo Nation, through the DPA, has the option to become an equity owner in NTP.

Since 2004, E3 has been providing financial and market advice to DPA management, Board of Directors and legal counsel on investment matters related to the NTP and DREP.

As part of its scope of work, E3 developed a financial model to analyze investment returns of NTP and DREP and to confirm Sithe Global Power's projections of future tax and royalty revenues to the Navajo Nation. E3 has provided an overview of risks associated with power plant and transmission line investment and ownership. E3 has also provided an overview of the various sources of equity financing for power plant projects and transmission line projects, including initiation of discussions with banks regarding such financing.



Artist Rendering of Desert Rock Energy Project.



For further information please contact Joe Mendez at 713-956-1142 or by email at joe.mendez@e3co.com.

Beyond the Debate—Climate Change Regulations are on the Horizon

By Carol Palazzotto, P.E., E3 Consulting®



A White Paper has been prepared by E3 consultant Carol Palazzotto that portrays how the discussion among industry, regulators, and investors on the issue of climate change has become much more widespread over the past few years and continues to intensify. The paper addresses

how companies in various industrial sectors are standing out by choosing to take the lead in voluntarily disclosing their emissions numbers and their strategic plans for dealing with climate change issues. Investment firms and individual shareholders are placing increasing pressure on other companies to do the same.

The U.S. government supports research and voluntary actions related to climate change, and appears to be moving toward mandatory programs. If regulations are inevitable, as trends in opinion would indicate, there is a consensus that federal regulations are preferable to a variety of state regulations, for consistency and predictability. States and regions are moving forward with programs, with the most aggressive effort and the

only program that will be mandatory in the northeastern U.S.: the Regional Greenhouse Gas Initiative (RGGI). RGGI is a cap and trade market-based program, setting emission limits on power plants of 25 MW and greater, allowing the plants to trade emission allowances. Seven northeast states confirmed their commitment by signing a Memorandum of Understanding (MOU) on December 20, 2005, and one more has agreed to join. RGGI is expected to be implemented in 2009.

On June 26, 2006, the Supreme Court announced that it will hear the appeal of whether EPA is required to regulate CO₂ under the Clean Air Act. The future of federal GHG regulation will be significantly impacted by the results of this case, expected by June 2007. Although the case focuses on vehicle emissions, a court decision declaring CO₂ a harmful pollutant would make it hard for EPA to avoid action on emissions from power plants.

The White Paper can be found at [http://www.e3co.com/files/whitepapers/Climate Change Regulations White Paper CP July 2006 Column.pdf](http://www.e3co.com/files/whitepapers/Climate%20Change%20Regulations%20White%20Paper%20CP%20July%202006%20Column.pdf)

25 Eastern States Facing September Power Plant Pollution Deadline

E3 Consulting® warns that few states are working on compliance plans

E3 Consulting®, which specializes in financial, technical, operational and environmental analysis for energy sector clients, predicted today that most of the 28 eastern states facing tougher new EPA emissions standards for coal-fired power plants will be unable to meet the September deadline for their compliance plans.

Experts at E3 who have reviewed the air compliance planning processes in the targeted states say not all states appear to be on track to be able to make the deadline.

“More and more people are becoming aware of the difficulty of meeting the September deadline, and there will be more and more anxiety as a result, which is understandable considering the process to revise implementation plans in some states”

—James F. Short, Senior Vice President at E3.

In March of 2005, the U.S. Environmental Protection Agency issued the Clean Air Interstate Rule and the Clean Air Mercury Rule, which are designed to begin

cutting sulfur dioxide, oxides of nitrogen, and mercury emissions from coal-fired power plants east of the Mississippi River beginning in 2009.

The EPA set the deadline for State Implementation Plans (SIPs) to be filed by September 11, 2009. “It is not clear that all of the states are responding in a way that will allow them to meet the deadline” said Short. E3 believes that as the September 11 deadline for submitting plans draws closer, states will request the EPA for extensions of time to file, and some litigation may result.

E3 has thoroughly analyzed the new EPA emissions standards and predicts that once they go into force and emissions allowances are cut, there may be a wave of expensive retrofits to bring plants into compliance—or outright retirement and replacement of older plants at which retrofitting would be prohibitively expensive.



For further information please contact Jim Short at 303-762-7062 or by email at jim.short@e3co.com.

E3 News & Information

We are pleased to announce that E3 Consulting® has just launched a new and completely revised website. The new site not only looks very different, it has been updated with the latest information on our team, services, projects, news and major events. Please take a few minutes to view the site ... and stay tuned for more updates as we continue to expand!

www.e3co.com

Gasification Yields Clean Fuel, Several Byproducts

By Scott Vanderau, P.E., E3 Consulting®



While coal gasification is making headlines as a process that can provide a cleaner burning fuel for the nation's power plants, one aspect of gasification that holds additional promise is its potential to produce many other useful products. What is gasification? Simply, it is a process in which heat is applied to carbon-based materials such as coal, petroleum,

petroleum coke or biomass, and the primary product is a synthetic natural gas—syngas.

Syngas is combustible and can therefore be used as a fuel source, as is the case in Integrated Gasification Combined Cycle (IGCC) projects, where the syngas made from coal is used as a fuel for a combustion turbine at a power plant. Syngas is also an intermediate material that can be

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chemically manipulated to produce ammonia and fertilizer, methanol, propylene, or Fischer Tropsch (FT) diesel fuel. Through other processes, syngas can also be altered to increase the hydrogen content, and produce a pure hydrogen product stream.

IGCC represents the cleanest of current coal technologies, and leads to higher efficiencies, lower emission rates, and also allows capture of carbon dioxide. During the IGCC process, sulfur in the coal is converted to hydrogen sulfide, which can be captured in order to cut down on harmful sulfur emissions into the environment. In some cases, this sulfur can be sold as a byproduct.

The syngas burned in the combustion turbine is also practically free of nitrogen, which limits nitrous oxide emissions, further cutting down on pollution. In fact, with the addition of special catalytic reduction technology typically used in combined cycle plants, IGCC technologies can achieve low nitrous oxide emission levels comparable to burning natural gas. In addition, if oxygen is used in the gasifier instead of air, the carbon dioxide emitted is in a concentrated gas stream, where it can be captured and sequestered.

Fischer Tropsch (FT) Diesel

The FT process produces fuels from syngas that contain essentially no sulfur, aromatics or ring chain hydrocarbons that are toxic and harmful to the environment. Once the hydrocarbons are produced from syngas, they can then be processed into a wide range of commercial products, from gasoline to synthetic diesel to candle wax. The product upgrading procedure makes use of standard hydro-cracking processes commonly found in the refinery industry.

The product FT diesel is biodegradable, typically contains less than one part-per-million of sulfur, and is stable for a long storage life. In addition, FT diesel burns more completely than conventional diesel fuel, which leads to



A commercially operating gasification plant in Spain.

lower emissions from diesel engines. The FT process does produce carbon dioxide, but it is in a pure stream and is easily contained so that it can be sold to third parties or sequestered by injection into underground wells.

E3 Consulting® Gasification Experience

E3's gasification experience includes detailed due diligence, construction monitoring and performance testing services for gasification lenders, developers and acquirers. Our technology experience includes the Conoco-Phillips and the General Electric coal gasification technologies, as well as waste-to-energy gasification, and the team is experienced in the regulatory and environmental permitting and environmental site assessment associated with gasification facilities throughout North America. E3 personnel have performed due diligence on the Wabash River Coal Gasification Project, and the Polk Coal Gasification Project, as well as a technology review on a waste to energy project in the U.S. Virgin Islands. E3 personnel also are assisting in the development of a biomass gasification technology, which includes technology reviews, site suitability concerns, and a review of the potential products and their markets.