

# F U E L F O R T H E F U T U R E



**W**e depend heavily on gasoline to fuel our most common and essential day-to-day operations. But now the cost to import foreign oil is at an historic high, and the need for viable alternatives has increased at top-speed.

O'Brien & Gere is helping supply momentum by partnering with Northeast Biofuels, LLC on a proactive, multi-phased permitting, design, and construction program. The program: Convert a former brewery into one of the largest ethanol plants in the nation, and the first plant in the Northeast.

## **Ethanol – The Basics**

Ethanol — or ethyl alcohol — is most commonly known as the chemical compound used to produce alcoholic beverages, but other uses include fueling automobiles, either alone or mixed with gasoline. It can be blended with gasoline to reduce reliance on petroleum fuels and to mitigate air pollution. Two mixtures — E10 and E85, which contain 10% and 85% ethanol, respectively — exist today in the U.S.

**Fuel Oxygenate.** More and more, ethanol is being added to gasoline to allow it to burn more efficiently. In this scenario, ethanol replaces methyl t-butyl ether (MTBE), a chemical that many states have banned due to its tendency to dissolve and spread into ground water.

**Bioethanol.** Recent years have seen a growing national interest in bioethanol, or ethanol derived from crops. Bioethanol offers a potentially sustainable energy resource, and may provide more long-term environmental and economic benefits compared to gasoline. It is obtained from the starch in crops, most commonly maize (corn).

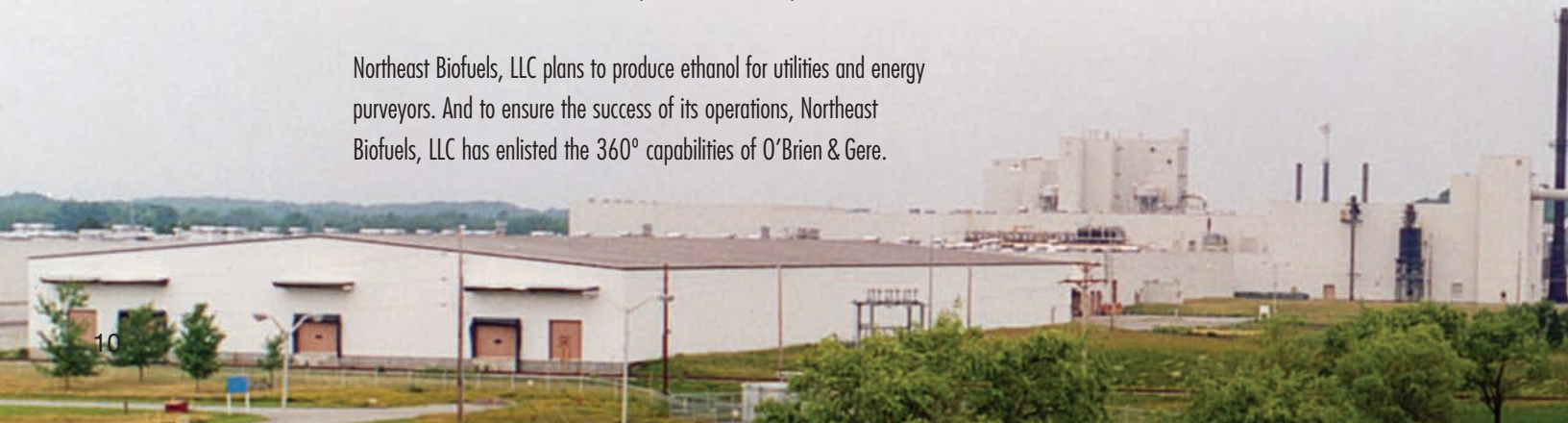
Northeast Biofuels, LLC plans to produce ethanol for utilities and energy purveyors. And to ensure the success of its operations, Northeast Biofuels, LLC has enlisted the 360° capabilities of O'Brien & Gere.

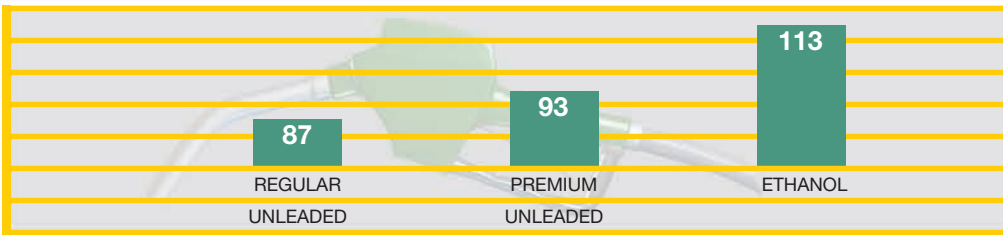
## **How the Project Came to Be**

In 2001, the owners of Riverview Business Park in Fulton, NY (Eric Will and Tom Denney) decided that the site — a former brewery — was ideally suited to support a fuel-grade ethanol production facility. The site still housed much of the old equipment, including boilers, an electrical substation, and various process vessels and piping, including stainless steel fermentation tanks. Will and Denney recognized the value of the remaining infrastructure and decided to form Northeast Biofuels, LLC and convert the plant to a fuel-grade ethanol facility.

Northeast Biofuels, LLC retained O'Brien & Gere to launch a proactive campaign on their behalf. O'Brien & Gere met with the Town of Volney Planning Board to promote the environmental and economic advantages of the project. The Board approved the conceptual plan, which was based on re-occupancy and reuse of the facilities, and the addition of the ethanol plant.

Air and water discharge permits were required, so O'Brien & Gere submitted a comprehensive permit application to the New York State Department of Environmental Conservation (NYSDEC). And even though the NYSDEC had never before permitted such a facility in New York State, O'Brien & Gere's strong relationship with the agency proved advantageous: the NYSDEC approved the permits, setting the stage for this \$150 million landmark project.





### 360° Support from O'Brien & Gere

In addition to permitting activities, O'Brien & Gere provided engineering and an in-depth evaluation of multiple plant powering options for the facility.

The economic benefits of reusing existing coal boilers was compared to other options, such as natural gas. The final recommendation: recover the energy generated by natural gas-fed thermal oxidizers present at the facility, and use it to provide the required steam-load to the plant. This novel arrangement alleviated potential regulatory issues associated with the use of coal, and also lowered facility emissions to below major source thresholds — ultimately cutting half the time required for permitting.

O'Brien & Gere also evaluated the facility's wastewater treatment plant to assess whether it needed modification or enhancement in order to meet the wastewater discharge regulations. Based on the results, O'Brien & Gere sought and obtained a State Pollution Discharge Elimination System (SPDES) permit from the NYSDEC, ensuring that Northeast Biofuels, LLC could discharge the wastewater generated during ethanol production.

With permitting efforts complete, O'Brien & Gere began providing engineering services to support plant construction. The O'Brien & Gere team will support the effort by providing comprehensive site/civil and structural engineering assistance. The new plant should be fully constructed within the year, with operations to begin in Fall 2007.

### A Collaborative Effort Reaps Real Rewards

O'Brien & Gere partnered with a diverse range of firms, industries, and community leaders to take the ethanol plant project from an innovative, ambitious concept to a precedent-setting reality. The result of these partnerships: a stronger community and a re-energized local economy.

The new plant will require approximately 75 employees, and create more than 1,000 job opportunities in transportation, agriculture, service, and other supporting industries. In addition, the increased demand for grain — the foundation of bioethanol production — will invigorate agricultural output from the Northeast, as the plant will require 40 million bushels each year to operate.

### Long-term Benefits

From an economic standpoint, this initiative is exciting — one way to lessen our dependence on foreign oil. And from an environmental standpoint, ethanol represents an important step in managing and reducing air pollution.

O'Brien & Gere has played a vital role bringing this initiative to life — evidence that O'Brien & Gere's 360° project delivery method reaps real value not only for our clients, but for our communities and the nation.



**Matthew Traister, PE**

Matthew Traister brings 19 years of environmental consulting experience to the Northeast Biofuels, LLC ethanol plant initiative. Throughout his career, Mr. Traister has spearheaded many challenging air quality and environmental compliance projects, with Northeast Biofuels, LLC being one of the most significant. A recognized expert in air permitting, emission inventory development, and air/odor pollution control design, Mr. Traister has authored more than 20 technical papers and publications, and routinely provides project management for regulatory programs involving New Source Review, Title V permitting, and consent orders. In addition to his expertise in permitting and design, Mr. Traister has broad experience in air dispersion modeling, meteorology, and atmospheric chemistry.

### Other Alternative Energy Efforts

O'Brien & Gere is currently providing design engineering, environmental permitting assistance and construction management services to ethanol and biodiesel manufacturing plants across the country. The combined capacity of these facilities totals more than half a billion gallons of alternative energy. O'Brien & Gere is also actively involved in the development of cellulosic ethanol technology, teaming with academic researchers and an industry partner seeking to commercialize this form of ethanol production.