Conversion to Natural Gas: Navigating the legal hurdles

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It is hard to ignore the growing popularity of natural gas. We are routinely bombarded with news of historically low prices and increasing supplies, bolstered by advances in hydraulic fracturing. And although switching to natural gas is not the silver bullet to combat climate change, natural gas is recognized as a cleaner and more efficient fuel than coal. With these economic and environmental factors in mind, anyone who currently relies on coal or oil cannot ignore the possibility of converting to natural gas.

Planning for such a conversion involves numerous engineering and financial considerations. Anyone who operates a district energy system is probably well-equipped to meet the challenges of interconnecting equipment, piping and wires to create sophisticated production and distribution facilities powered by natural gas. But beyond these engineering feats, a host of legal issues wait in the wings, which, if not properly addressed, could derail the best-designed project.

Cornell University in Ithaca, N.Y., recently went through this conversion process when it constructed a new 30 MW combined heat and power system that burns natural gas and supplies the campus with power. The project helped Cornell become more energy-efficient, eliminate the use of coal and, in the process, reduce greenhouse gas emissions by more than 25 percent. Through the lens of Cornell’s conversion experience, we examine the numerous legal hurdles, including regulatory requirements and complex contract negotiations that routinely arise when switching fuel sources.
Cornell’s Conversion to Natural Gas

The Cornell University campus consists of approximately 250 buildings totaling 14 million sq ft of facilities dedicated to teaching, research and outreach. The campus is served by district energy/CHP systems for heating, cooling and electricity. For decades, Cornell’s Department of Energy and Sustainability endeavored to create highly efficient and sustainable systems. Among the many innovative projects completed is the lake source cooling system, which began operation in 2000 and is capable of cooling the entire campus. Cornell University, which has pledged to reduce its greenhouse gas emissions ultimately to zero over 40 years, then focused on its power and heating systems as the next step to improved energy reliability, economy and sustainability.

In 2003, Cornell engineers conceived of a new 30 MW CHP system that would burn natural gas and supply the campus with power. This project, which became operational in late 2009, included many sustainable features, including unique dual-temperature heat recovery steam generators that help extract additional energy from the system while maintaining the high-pressure steam for existing steam turbines, an ability to “island” if needed due to local weather emergencies, and extensive emissions controls. Once approved and funded internally, the duration of the project to completion was approximately four years. There were many factors, technical and otherwise, that were critical to the successful project.

The Legal Issues

Cornell waded through a sea of permits, regulatory requirements and contracts in order to purchase equipment, begin construction, obtain an adequate fuel supply and ultimately commence production. A project cannot get off the ground if the legal issues are an afterthought.

Often the legal requirements will dictate certain construction or operational specifications of the project, and they will certainly affect the timeline for completion. Cornell was able to complete all the contractual and regulatory agreements (46 in total) necessary to attain all project goals. These legal documents were the culmination of regulatory processes and contractual negotiations at every stage of the planning and construction process, which took years to complete.

No two projects are the same, and laws may vary from state to state. It is therefore impossible to anticipate all the legal challenges you may face. But the following provides a road map of the basic contractual and regulatory concepts you will need to consider the moment you begin planning a conversion to natural gas.

Obtaining Natural Gas Supplies

Securing a reliable and economic source of natural gas is the principal factor driving these conversion projects. This entails both purchasing the natural gas commodity and arranging for physical delivery. Perhaps you already purchase natural gas from your local utility, which can similarly accommodate your additional gas needs. However, projects of this scale often require quantities of gas that exceed what the existing infrastructure can support, and they often demand technical delivery specifications necessitating system upgrades. As with any stage in the planning process, operational and financial considerations will ultimately dictate how gas is delivered to the project. But there are also legal and regulatory ramifications to these decisions.

Physical delivery of natural gas can come from several sources including the local distribution company (LDC) and one or more interstate pipelines. Choosing the best delivery provider will greatly depend on your geographic access to pipeline facilities and the willingness of delivery providers to negotiate the transportation services needed by the project. Prior to the deregulation of the natural gas industry, national policy dictated a preference for “bundled” delivery service provided by the LDC. However, deregulation introduced the concept of open access transportation, giving end-use customers the same rights to interstate transportation as the LDCs. Today, you may have a choice of providers. If feasible, it is important to explore more than one option, which can provide negotiation leverage and help secure the most economic deal.

The LDC and interstate pipelines are governed by different legal and regulatory regimes: The former is usually regulated by the state public utilities commission, while interstate pipelines are regulated by the Federal Energy Regulatory Commission (FERC). The policies dictating the terms of transportation service from each of these providers may therefore differ. It is helpful to consult legal experts in these areas to help navigate the various regulatory schemes. That said, the steps for securing transportation service either from the LDC or the interstate pipeline include the negotiation of similar arrangements.

In the case of Cornell, the interstate pipeline became the ultimate provider of transportation service. This process began with the negotiation of a precedent agreement, which commits the project to receive delivery services from the pipeline and describes the terms and conditions of that service, including the type of service to be provided (e.g., firm or interruptible), the quantities and quality of gas needed, the delivery location, the rates to be charged and the service commencement date. The agreement may also contain conditions precedent that must be met before service can be obtained, such as creditworthiness requirements, constructing system upgrades or additional facilities, and obtaining regulatory approvals.

For Cornell, a new 3.2-mile pipeline capable of carrying 550 psi gas was constructed to bring supplies to the new project. When system upgrades or
new pipeline facilities are required, additional contracts must be negotiated. The interconnection agreement will address the design and construction of the facilities connecting the project to the pipeline, the land rights and permits that may be needed, the operation and maintenance of the new facilities, and any future facility costs. In some cases, the parties may negotiate a separate construction and reimbursement agreement to address cost responsibility for the new facilities. Finally, the parties must negotiate a transportation service agreement. These agreements typically reference the pipeline’s tariff and contain the specific services and rate schedules that will apply. It is important to note that interstate pipelines constantly make changes to their tariffs and that such changes must be filed and approved by FERC. So even after you have negotiated service agreements and the project is operational, continual monitoring of pipeline activity at FERC will provide you notice of these changes and, if necessary, an opportunity to challenge them.

In addition to transportation, the actual supply of natural gas must be procured. In Cornell’s case, the transition from coal to natural gas required an additional 2.7 million dekatherms of gas per year. Often, this requires the issuance of a request for proposals to select a natural gas supplier. The gas supplier’s role is to assure the procurement of the transportation and physical commodity on a day-to-day basis and to execute hedges as requested. Gas suppliers typically require the use of standard industry contracts, such as those published by the North American Energy Standards Board or the International Swaps and Derivatives Association. A master agreement will cover the general terms and conditions of service, and separate transaction confirmations will contain any special service provisions and the specific details of the transaction, such as quantities of gas, rates and delivery requirements.

Risk management is yet another consideration in procuring gas supplies. Because natural gas is traded in a well-established transparent market and is a storable commodity, there are many alternatives to hedge risk. Corporate risk tolerance is the driver that determines the strategy to be employed. Cornell developed an energy procurement policy to define the envelope within which energy procurement would occur. It includes items such as the time and financial duration of the energy portfolio, single transaction limits, types of instruments to be used, creditworthiness of counterparties, program oversight requirements and reporting requirements. The policy also delegates the authority of fuel purchasing to the department to allow for quick decision making in a fluid market.

**Electric Issues**

Depending on the size and operating characteristics of the project, additional consideration must be given to electric connections. To ensure the
It is critical to begin negotiating the details of the interconnection in the early stages of project planning.

The interconnection agreement governs the operation and maintenance of the facilities connecting the project to the local utility. It ensures that the new generation project will not cause harm to the utility’s electric grid, that the system is properly monitored and that metering requirements are met. Cornell already owned a substation that transformed power from the transmission level to the distribution level capable of serving the campus’s needs. However, it was necessary to completely renovate this facility to accept the relatively large quantity of new generation, requiring Cornell to obtain a new interconnection agreement.

It is critical to begin negotiating the details of the interconnection in the early stages of project planning and to maintain open lines of communication with the utility to make sure these requirements are incorporated in the overall project design. You can expect that the utility will prescribe exacting design requirements and will not allow the interconnection to be energized or the generator to be synchronized until the agreement is fully executed. The interconnection agreement also includes many general legal provisions such as indemnification, force majeure, dispute resolution, consequential damages, insurance requirements and terms of termination. This is typically a pro forma agreement that has been approved by the applicable regulatory body, so modification of these terms is difficult, though not impossible.

With electric demands typical of universities in the Northeast, Cornell needs to import power from the grid in the summer months but is able to export power to the grid during the winter. In this situation, two additional agreements need to be negotiated. First, you may need to enter into a separate service agreement for backup or emergency services. Securing electric supplies over and above what the project may generate requires a good understanding of the local utility’s retail tariff and the types of backup service offered. Again, these service agreements typically reference a filed tariff that may change from time to time. Monitoring the various rate and service modifications initiated by the local utility is necessary to protect your financial interests and operational needs.

On the flip side, when the project generates excess power, opportunities exist to sell that power back to the local utility, or, if applicable, to the regional energy markets, which means entering into a separate power purchase agreement. State electric tariffs or federal regulation may dictate the value of the power produced and whether the local utility is obligated to take the power. In some areas of the country, the mandates of the Public Utility Regulatory Policies Act (PURPA) are still in place, and the local utility may be required to buy back excess power at its avoided cost rate. In regions with organized energy markets, local utilities may petition FERC to discharge their PURPA requirements. State electric tariffs or federal regulation may dictate the value of the power produced and whether the local utility is obligated to take the power.

Finally, depending on the operational characteristics of the project, additional benefits may be obtained through participation in demand response programs.

Permits

No construction project can get off the ground without the necessary permits. Local zoning boards, planning bureaus and public works departments all require their stamp of approval before construction on a conversion project can begin. Additionally, energy projects typically require environmental permits designed to regulate emission levels. In most cases, state and local environmental agencies are responsible for issuing the air permits and ensuring the project is in compliance with both state and federal pollution control requirements. Even when the overall effect of the conversion project will lower hazardous emissions, it is not unusual for the permit process to take one to two years. Cornell’s air permit took more than a year to prepare and 11 months to obtain, despite the fact that the plant was dramatically reducing both harmful emissions and greenhouse gases compared to existing equipment. So factoring these requirements into any construction timeline is a necessity.

Typically, environmental permits are required at two stages. In the first stage, the agency will review the project design and issue a construction permit. Applying for the construction permit will require you to provide to the regulatory agency the specific technical and design details about the project, including the equipment you intend to use, so that an accurate assessment of the emission levels can be made and the regulatory agency can determine whether pollution control limits can be met. These permits often require that construction commences and terminates within a prescribed time frame, so including the permit process in the planning stage of the project is vital. The second stage at
which a permit is required is after con-
struction is complete. At that point, an
operating permit is issued that sets the
emission performance standards.

Environmental laws may vary from
state to state. In some cases where emis-
sions fall below certain thresholds, exemp-
tions from these permitting requirements
may be available. Consulting with environ-
mental experts early in the process will
improve the likelihood of obtaining the
necessary permits by the most efficient
and cost-effective means.

**Conclusions**

Converting to natural gas is more
than just dealing with pipes and wires.
We hope Cornell’s experience helps you
to appreciate the myriad of legal require-
ments that must be addressed before
the first Btu of gas is ever burned. Those
involved in the project at Cornell dem-
onstrated the technical expertise, astute
organization, tenacity and perseverance
necessary to see the conversion through
to its successful completion.

Wading through the contractual and
regulatory requirements associated with a
switch to natural gas may seem daunting.
The most important lessons to take from
Cornell’s experience are to face these
legal challenges as soon as you begin the
planning process and to look for capable
experts who are experienced in navigat-
ing the regulatory and utility contracting
processes. Anticipating at the outset of
the project the time and resources it will
take to obtain the necessary permits and
negotiate the many agreements will save
you time and money in the end.

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