



# Simplifying the Fuel Oil Conversion Process

- ▶ **Helping building owners and operators select the right fuel for their facility and execute a low-cost, low-risk conversion**

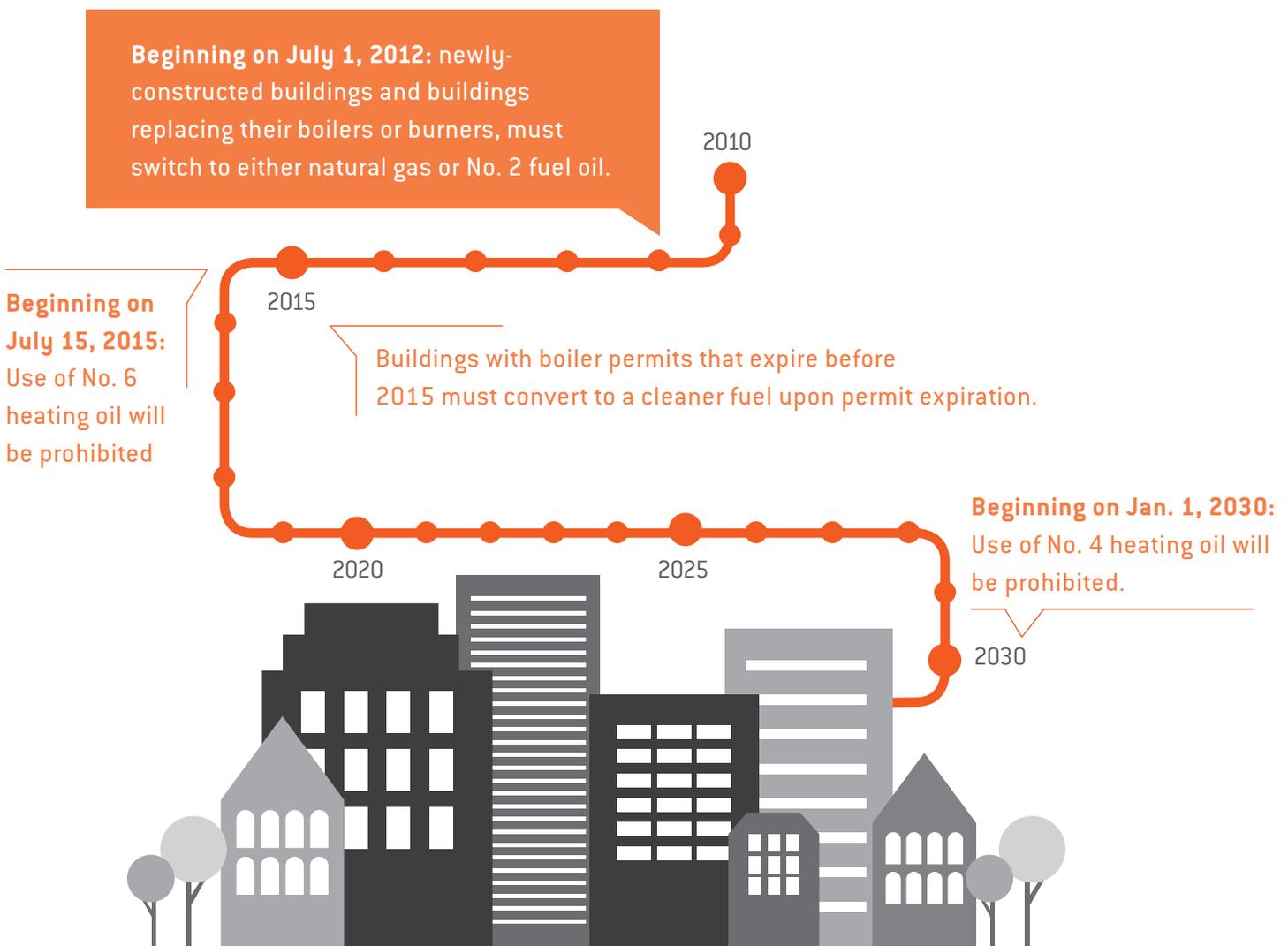
### An Introduction to New York City's Clean Heat Regulations

In 2011, the statistics were startling: Just 10,000 of New York City's buildings—about 1 percent of the total—accounted for about 86 percent of the city's building-related soot pollution, pumping more particulates into the air than all the cars and trucks in the city combined.<sup>1</sup> To address this problem, which had a significant negative impact on both air quality and citizens' health, the city adopted sweeping new regulations, called the Clean Heat Initiative, that require building owners and operators to convert to cleaner fuels.

New York City Clean Heat regulations include the following:



**New York City has adopted the Clean Heat Initiative, which requires building owners and operators to convert to cleaner fuels.**



## Your Choices for the Future

Keeping the Clean Heat Initiative and its guidelines in mind, consider which of the following might be the right course for your business:

- Use No. 4 fuel oil, despite the looming ban and uncertainty about future prices
- Switch directly to No. 2 fuel oil
- Invest in the necessary equipment to upgrade to cleaner-burning and price-stable natural gas<sup>3</sup>

Direct Energy Business is more than just a supplier. We have a distinct focus on helping to make your business better by providing straightforward guidance that comes from our more than 25 years in the industry. To help your facility prepare for the fuel requirements and financial considerations that go with them, we've created this guide to provide information about the fuel conversion process and options for executing this transition.

## How to Select the Fuel That Makes Sense for You

The first step to selecting the “right” fuel for your building involves comparing the financial benefits and cost effectiveness of the available fuel options. This analysis can be performed by:

- in-house staff
- an independent engineer
- a full-service energy provider

The comparison should take into account:

- any capital improvements required to prepare the building for each fuel option
- the cost of the fuel itself
- annual maintenance expenses related to each fuel



**The typical building spends approximately 30 percent of its budget on energy expenses,<sup>2</sup> therefore, it is imperative to compare the relative economics of using fuel oil versus natural gas.**

The outcome of the analysis will vary by building type and the existing fuel, but some factors are universal, including:

- Buildings that use No. 4 fuel oil will continue to incur significant maintenance costs associated with using that fuel blend.<sup>4</sup> In addition, the on-site tanks required for buildings with fuel oil pose a greater leakage risk as they age, and oil leaks can cost hundreds of thousands of dollars to repair and remediate.
- Conversion to No. 4 fuel oil *will not* meet the regulatory requirements to move to No. 2 fuel oil or natural gas by 2030. If you are considering a switch to No. 4 fuel oil in the short term, you must also incorporate the cost of converting to No. 2 fuel oil or natural gas into your analysis.
- Although initial costs to convert equipment to burn natural gas will be higher than initial costs to prepare equipment to burn No. 4 or No. 2 fuel oil, there will often be a net financial benefit to converting to natural gas over the long term. Over time, natural gas may end up costing significantly less, will burn cleaner than its fuel oil alternatives, and requires less maintenance.<sup>5</sup>

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### A Closer Look at the Cost of Fuel Oil vs. Natural Gas

Previously, many building owners opted to burn No. 6 and No. 4 fuel oils because they have always been cheap and readily available, as compared to natural gas. But that has changed in the past decade.

In 2004, the price of heating oil in the Northeast averaged just \$1.78 a gallon. In comparison, by 2013, the average price had more than doubled to \$3.92 per gallon.<sup>6</sup> Natural gas prices, on the other hand, are headed in the other direction. Prices went from \$5.90 per MMBtu in 2004, to an average of \$3.72 per MMBtu in 2013.<sup>7</sup>

The changes in the natural gas market can be attributed to the widespread commercialization of horizontal drilling and hydro-fracturing techniques. These developments have enabled companies to tap previously unrecoverable or uneconomic resources—a trend that the U.S. Energy Information Administration (EIA) expects to continue into the next decade.<sup>8</sup> This supply surge has caused natural gas prices to fall, making this resource much more cost-effective than fuel oil in many cases.

### The Cost Advantage of Natural Gas

Data for the Henry Hub in Louisiana, one of the principal trading points for natural gas in the U.S., shows that natural gas prices have averaged around \$4 per million Btu (MMBtu) since 2010—and the EIA expects those prices to remain essentially unchanged through 2015.<sup>9</sup> Further, in the early release of its 2014 *Annual Energy Outlook*, the EIA projected that spot prices at the Henry Hub would remain below \$5/MMBtu through 2020, ending the period at an estimated \$4.38/MMBtu.<sup>10</sup>

The news may be even better for customers in the Mid-Atlantic and Northeast, given the surge in production from the Marcellus and Utica shale plays that are located primarily in Pennsylvania and Ohio. For example, the EIA noted in an August 2014 report that prices at the Dominion South hub in Southwestern Pennsylvania have gone from being marginally above the Henry Hub price in 2010 and 2011, to rough parity with Henry Hub in 2012

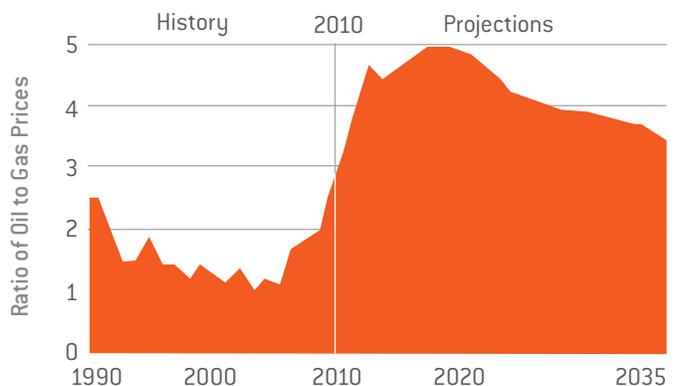


and 2013, to sharply lower than Henry Hub in 2014.<sup>11</sup> Three other trading hubs in northern Pennsylvania—Dominion North, Leidy and Tennessee 4—have been similarly below Henry Hub for much of 2014.<sup>12</sup>

With these new gas supplies, the EIA expects consumer costs to remain in check through 2020. In its 2014 *Annual Energy Outlook*, the agency said all-in costs for commercial natural gas buyers, which averaged just over \$8/MMBtu in 2012, will not rise above \$9.50/MMBtu before 2020. In contrast, the agency says distillate fuel oil prices for commercial customers will remain above \$20/MMBtu through 2020—and likely beyond.<sup>13</sup>

Looking further ahead, the EIA expects prices for both natural gas and fuel oil to rise, meaning that the relative price difference will remain in favor of natural gas for the foreseeable future (see the chart below).

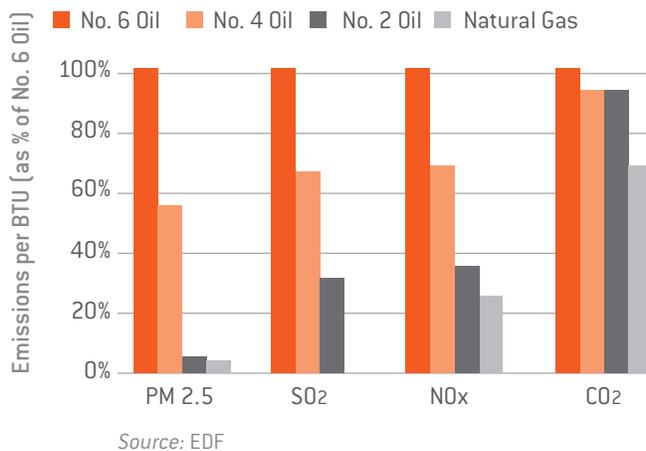
### Ratio of Low-Sulfur Light Crude Oil Price to Henry Hub Natural Gas Price on Energy Equivalent Basis, 1990-2035



Source: EIA

Natural gas is not only less expensive and more readily available, but also a much cleaner fuel source. Natural gas releases far fewer compounds into the atmosphere than even the “cleanest-burning” form of heating oil.

## Comparison of Harmful Emissions from Different Heating Fuels



### A Case Study in Saving with Natural Gas

Let’s examine an Environmental Defense Fund (EDF) case study that demonstrates how building owners who switched from fuel oil to natural gas were able to quickly recover their capital investment for the conversion.

A Queens, New York facility chose to convert two boilers and burners from No. 6 fuel oil to natural gas. This switch saved the business almost \$100,000 annually

**Building owners who switch from fuel oil to natural gas tend to quickly recover their capital investment in the conversion.**



in fuel charges, which helped them recover their capital investment in just over three years. And, once the conversion costs are recovered in cases like this, building owners can continue to benefit from the savings between the cost of natural gas and the fuel they previously ran on—especially given the EIA’s projections for relatively low natural gas prices in the decades ahead.<sup>14</sup>

Keeping this information in mind, property owners should give serious consideration to switching to natural gas to comply with the new city regulations, instead of simply changing to a slightly cleaner, but still more costly, type of fuel oil.

### Factors to Consider When Choosing An Energy Service Provider for Your Conversion

With this initial data in hand on the financial comparisons between fuels, you may have decided that a conversion is right for your building. And, that means planning for and executing the fuel conversion.

#### Who will handle planning the details of the conversion?

If there is building staff or a board member with the expertise and time to act as a general contractor, this individual will need to devote time and energy to:

- bidding out the various parts of the process
- evaluating the bids
- hiring and overseeing specific trades to complete the necessary work
- coordinating with the utility to connect into a natural gas pipeline
- identifying and applying for available incentives and rebates to reduce the project costs
- determining how the project will be financed once total estimates are in

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Another option is to hire an energy expert or firm that is capable of managing the details of this transition. Such hired help could consist of consultants, engineers or mechanical contractors—all of whom will be able to handle a *part* of the conversion (i.e. sourcing natural gas or planning a new boiler installation)—but would not have the expertise to complete the *entire* project. This means that you might need to look for a full-service energy firm capable of providing a turnkey solution for your conversion—from initial analysis to final completion.

Keep in mind that not all full-service energy firms are created equal. When evaluating firms for your project, consider one that has the following capabilities and offerings:

- **Full suite of energy options:** During the conversion process, you will need a trusted supplier who can help you make the most of the energy opportunities available to you. Companies like Direct Energy Business offer a powerful combination of innovative products, straightforward guidance and customized service to help your business leverage the right energy supply strategy—since the fuel conversion is only part of the potential savings equation.



**Building owners and operators can manage the conversion themselves, but they also have the option to work with a full-service supplier like Direct Energy Business that can provide the capital and source the natural gas for the upgrades.**

- **End-to-end project management:** It is possible to avoid the burden of managing the conversion process yourself. Look for an energy firm that employs experts, including project managers, professional engineers and energy auditors, with the necessary experience to provide a comprehensive solution. And, ask for references for other conversion projects that the company has managed.
- **Established relationships:** Choose a credible and reliable company that has established relationships with all parties involved in the conversion process, including the local utility and government permitting agencies. This will increase the odds that your project will be completed on time and without complications.
- **Innovative financing arrangements:** A full-service provider should be able to offer payment options that do not require the use of internal building reserves or a special assessment on residents. Some providers may also offer options that do not require buildings to pay any up-front costs for the conversion project.

- **Ability to provide protection against project risk:** The firm you hire should protect your business from the risk of complications that could arise during a conversion by contracting directly with a mechanical contractor on your behalf. The firm should also have the financial strength to absorb any losses that may occur, so that they can keep the project on time and on budget—and provide services for your building in the future.
- **Insight into cost-saving opportunities:** There are a number of incentives and rebates that may be available to your building to help defray some of the costs of the conversion. Without the expertise and straightforward guidance of a full-service firm, you could end up missing or overlooking these opportunities.
- **Expertise in energy efficiency:** The right firm will take additional energy efficiency options into consideration when planning the conversion project—from the simplest, like insulating exposed boiler room pipes, to the more complex initiatives involving the installation of building-wide energy management systems. The incremental cost of such efficiency projects is likely to be low and, once the project is completed, could improve operational economics.



**One type of financing option could involve wrapping the capital costs of the conversion project into the fixed fuel price for a set number of years, thus eliminating an up-front, lump-sum payment for the conversion project.**

## A Question of Capital

Having or acquiring the necessary capital to complete a conversion project can be a major stumbling block for buildings and facilities. Here are some options to consider:

- Self-financing, which enables the building or its owner to directly recover savings from the conversion
- Seeking financing options by gathering information from city and local utility representatives—although this option still would require you to arrange financing independently. A full-service energy firm is a good option here since it will have the outside financial connections and in-house expertise to provide guidance to your business on how best to finance a particular project.
- Wrapping the capital costs of the conversion project into your fixed fuel supply price for a set number of years. This option may be available from a full-service energy provider that can handle both your conversion project and your fuel supply. Depending on fuel consumption after the conversion is complete, a building's monthly energy costs could still decrease, even after wrapping the project costs into the fuel price.

If you wrap the capital costs of your conversion project into your fixed fuel supply price, you may achieve the following benefits:

- The potential for significant savings in the years after the conversion is paid off
- Budget certainty in the initial period after the conversion with a fixed rate for your gas supply
- The chance for building owners and operators to comply with the city's long-term environmental goals now, without the need to secure financing for the entire project up front
- An opportunity for building owners and operators to tout their own sustainability initiatives

### Conclusion

In the end, the decision to convert your facility from one fuel to another is a matter of choice and will be based on a combination of economic feasibility, potential savings and the need to comply with regulatory policy. Although New York City's rules and regulations are straightforward—buildings must convert to a cleaner fuel soon if they are currently burning a heavy fuel—you still have the opportunity to choose which path to take for your business.

If you're curious about what a conversion will entail or you need help conducting the initial analysis, it may be helpful to begin by contacting a full-service energy firm, like Direct Energy Business, to learn more. Many individuals and firms are capable of handling a piece of the conversion effort, but the most timely (and least time-consuming) result often comes when one point of contact is managing a project and all of its elements from start to finish.

For more information on fuel conversion analysis, building conversion steps, financing, or regulatory compliance, please contact your Direct Energy Business Sales Representative today at [SolutionSales@directenergy.com](mailto:SolutionSales@directenergy.com) or 888.223.1524.

### About Direct Energy Business

Direct Energy Business is part of the largest retail energy supplier in North America and a champion in serving businesses' diverse energy needs. Our leadership position, deep expertise and commitment to addressing our customers' unique energy demands is how we earn the trust of our customers and help to make their businesses better.

With more than 25 years of industry experience, we are dedicated to helping companies make smart energy choices. Contact us today to discuss your energy needs and we'll help you navigate the opportunities available in your service location(s).

Learn more about Direct Energy Business and other energy strategies for businesses and organizations of all types by visiting [business.directenergy.com](http://business.directenergy.com) or call 888.925.9115.

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2. *2012 Annual Report*, Commercial Building Energy Alliance, (sponsored by DOE's Building Technologies Program), page 9
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14. Ibid

Results such as those described in the case study are not guaranteed and will depend on many factors, including, but not limited to, your company's risk tolerance, profile, and past and future decisions regarding energy purchases.

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