

Nicor's Energy News – April 2007

New “Sleeving” Process for Builders and Developers

Last November, Nicor Gas implemented a new residential sleeving process for builders and developers who tear down and rebuild homes in our service territory. For builders and developers who need natural gas service reconnected at a rebuild site, the new process requires that a two-inch plastic sleeve be installed at a depth of 24 inches below finished grade from the meter location to the parkway which will be used to accommodate the new service pipe. The sleeve must be capped at both ends prior to backfilling. The sleeve must also be clearly marked at both ends for identification.

If the sleeve is installed, a reconnection fee of \$845 (+ taxes) must be paid prior to the reconnection of service. If no sleeve is installed, a fee of \$1,453.40 (+ taxes) applies. Additionally, those who need service disconnected at a demolition site are responsible for paying a fee of \$652.00 (+ taxes) before the service will be retired.

For sleeve specifications and service connection/disconnection information, please call Customer Service at 815 754-3100.

Font Size



Nicor's Energy News

My ENERGY NEWS | Explore the Library | Ask an Expert | Newsletters | Tools You Can Use | Preferences

Appliance Connector Safety In The Home

Print | PDF | E-mail | Logout

Now that summer is approaching, many of your residents will be working on home improvement projects – some that include the purchase of new natural gas appliances. For several years now, Nicor Gas has been warning its customers regarding the potential danger of older brass appliance connectors with flawed end pieces that may break free of the brass tubing – causing a gas leak, explosion or fire. These connectors are the fuel supply lines to appliances such as gas ranges, water heaters and clothes dryers. While these types of connectors haven't been manufactured for more than 20 years, they can still be found in many older homes.

We encourage you to have your residents in older homes inspect their appliance connectors without moving the appliance. If the connector can't be accessed and inspected without moving the appliance, a qualified professional should be called to do the inspection. These connectors tend to be brittle and the slightest movement may cause it to break. If an old brass connector is found, it should not be moved or touched in any way. A qualified professional should be called immediately and the connector should be replaced with a new coated or uncoated stainless steel connector. **Due to the potentially dangerous nature of the old brass connectors, Nicor Gas customers should never attempt to replace the connector themselves.** Below are examples of the old brass connector and the new stainless steel connectors:

You Might Also Be Interested In...
[Co-Fired Applications Offer Operational and Environmental Benefits](#)
[Natural Gas Takes the LEED in Green Building Certification](#)
[LNG: The Basics](#)



Nicor Gas customers can take the following steps to find a qualified professional to inspect and replace appliance connectors:

1. Call a licensed, insured and bonded contractor that you have used in the past
2. Look in the Yellow Pages for a licensed, insured and bonded contractor under the following headings:
 - Heating or Air Conditioning Contractors
 - Appliance Repair Dealers
3. Call Nicor Gas at 1 888 288-8110 to get a quote or schedule an inspection

It is recommended that you get several quotes to compare services and costs. For more information on appliance connectors and general natural gas safety issues, [visit our Web site.](#)

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)



Nicor's Energy News

My ENERGY NEWS | [Energy Data Library](#) | [Ask an Expert](#) | [Newsletters](#) | [Tools You Can Use](#) | [Preferences](#)

Gas vs. Electric: Using Natural Gas Conserves Energy and Lower Emissions Print | PDF | E-mail | Logout

More than 69 million homes and businesses in the United States use natural gas, according to the American Gas Association. Using natural gas in their appliances or heating and processing equipment, also helps to conserve energy and protect our environment. Compared to electricity produced by burning natural gas, coal, or oil, the direct use of natural gas to power efficient appliances and equipment is much more energy efficient and produces far fewer emissions.

You Might Also Be Interested In...

[Partner With Your Utility to Reduce Your Energy Costs](#)

[A CFO's Guide to Energy Performance Contracts](#)

[The Price of Natural Gas: What You Should Know](#)

Natural Gas and Electric Power Generation

The electric power industry has come to rely more and more on natural gas as a source for generation, according to statistics from the U.S. Energy Information Administration[1]. A decade ago, less than 14% of electricity was generated using natural gas. Today, that total is nearly 19%. Since 1995, the total amount of natural gas consumed by the electric power industry has increased 52%. This trend shows no sign of slowing down. Of the total planned new electric generation capacity through 2010, 60% will be fueled by natural gas.

As a result, there has been a significant impact on natural gas demand and prices[2]. In 1997, according to the EIA just 19% of total natural gas consumption went to electricity generation. Last year, the number had risen to 31%. The large volume of natural gas used to generate electricity puts price pressure on natural gas. Because the direct use of natural gas is much more energy efficient than using natural gas to produce electricity, one way that consumers can help to lower natural gas prices would be to use less electricity. Switching to natural gas fueled appliances and equipment can help to lower electricity demand and, therefore, relax these price pressures and lower costs to consumers.

The Direct Use of Natural Gas and Energy Conservation

Fueling appliances and equipment directly with natural gas is a much more efficient use of this resource than using it to produce electricity and then transporting it across the grid to power those same appliances and machines.

When deciding between natural gas and electric appliances and equipment, consumers can often be confused by efficiency ratings. For example, a typical high efficiency electric water heater may have an efficiency rating of 90%, while a high efficiency gas unit may be rated at 65%. Sounds like the electric unit is a much more efficient use of resources, right? Well, not when you consider the total fuel cycle, which is the overall efficiency in delivering energy from its source to the ultimate consumer. In this case, natural gas is the clear winner—90% vs. 31% for electricity—according to analysis of energy flow data from the *Annual Energy Review*.

The following tables help to illustrate this point by considering our example of the high efficiency water heaters. The electric water heater has a 90% efficiency rating, while the gas unit has a 65% rating. When you consider total fuel cycle, however, a different story emerges. The electric water heater has a total fuel cycle efficiency of 28%, while the gas unit comes in at 58%. In other words, if you consider the amount of energy generated to power the electric water heater, only 28% of that is actually used by the water heater. The natural gas water heater, on the other hand, uses 58% of its "fuel cycle" energy.

Overall Efficiency of Electric Water Heater	
Electric water heater efficiency	90%
Electric generation, transportation, and distribution efficiency	31%
Cumulative efficiency	28%

Overall Efficiency of Natural Gas Water Heater	
Natural gas water heater efficiency	65%
Gas wellhead to consumer efficiency	90%
Cumulative efficiency	58%

The Direct Use of Natural Gas and the Environment

Aside from helping to conserve energy, the direct use of natural gas can help the environment by lowering greenhouse gas emissions caused by electric power generation. Electric power generation produces carbon dioxide emissions (CO2) at more than three times the rate of natural gas consumption. According to EIA data[3], an average of 1.34 lbs of CO2 is produced per kWh of electricity generated. An equivalent amount of natural gas (3412 BTUs) produces only about 0.4 lbs of CO2 emissions. Overall, according to the Annual Energy Review, electricity generation and consumption produces more than twice the amount greenhouse gas emissions than natural gas. Clearly, the direct use of natural gas can have important environmental benefits.

Natural Gas: The Clean and Efficient Energy Choice

Choosing natural gas to fuel your appliances and equipment can have important benefits in terms cost and efficiency. Lowering electric demand helps to reduce consumer energy costs for both gas and electric. The superior efficiency and emissions profile of natural gas production, transmission, and distribution, compared to electric power generation, helps to

conserve precious natural resources while improving the health of our environment.

[1] U.S. Energy Information Administration. Annual Energy Review 2005. July, 2006

[2] U.S. Energy Information Administration, *Natural Gas Monthly*, 1997-2007.

[3] U.S. Energy Information Administration. Volunteer Reporting of Greenhouse Gases Program. Fuel and Energy Source Codes and Emission Coefficients.

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

[Privacy Statement](#) | [Legal Notice](#)

Going Mobile: Securing Your Portable Electronic Devices

Print | PDF | E-mail | Logout

Business travelers these days increasingly rely on portable devices, such as laptops, smart phones, and PDAs to stay productive while on the road. With these tools, users can access and share company information and stay in touch with clients and colleagues. The portability and ease of use that make these technologies popular, however, also make them an easy target for thieves. While a lost or stolen laptop can be frustrating and inconvenient, a much more serious threat is to the data that they hold. Many portable devices contain access to client data, financial records, and other sensitive company information. Should this information fall into the wrong hands, it could prove a serious security threat to the organization.



You Might Also Be Interested In...

[Is ISO 27001 the Next Big Management System Standard?](#)

[Optimize Your Fulfillment Process With EDI](#)

[Be Advised, The New Junk Fax Act is In Effect](#)

Do you or your employees frequently do business on the road with portable devices? If so, you should take steps to both minimize the possibility of the devices being lost or stolen, and to secure access to the data that they contain. The Department of Homeland Security's Computer Emergency Readiness Team (US-CERT) offers the following recommendations.

Physical Security: Things You Can Do

Stolen data from portable devices can pose a serious security threat to your organization. Mobile security starts with actually keeping your portable devices in your possession. The following suggestions can help.

Password-protect your computer. Make sure that you have to enter a password to log in to your computer. For more information, see [Choosing and Protecting Passwords](#).

Keep your laptop or PDA with you at all times. When traveling, keep your laptop with you. Meal times are optimum times for thieves to check hotel rooms for unattended laptops. If you are attending a conference or trade show, be especially wary—these venues offer thieves a wider selection of devices that are likely to contain sensitive information, and the conference sessions offer more opportunities for thieves to access guest rooms.

Downplay your laptop or PDA. There is no need to advertise to thieves that you have a laptop or PDA. Avoid using your portable device in public areas, and consider non-traditional bags for carrying your laptop.

Consider an alarm or lock. Many companies sell alarms or locks that you can use to protect or secure your laptop. If you travel often or will be in a heavily populated area, you may want to consider investing in an alarm for your laptop bag or a lock to secure your laptop to a piece of furniture.

Back up your files. If your portable device is stolen, it's bad enough that someone else may be able to access your information. To avoid losing all of the information, make backups of important information and store the backups in a separate location. Not only will you still be able to access the information, but you'll also be able to identify and report exactly what information is at risk. For more information, see [Good Security Habits](#).

What if my portable device is lost or stolen? Report the loss or theft to the appropriate authorities. These parties may include representatives from law enforcement agencies, as well as hotel or conference staff. If your device contained sensitive corporate or customer account information, immediately report the loss or theft to your organization so that they can act quickly.

Securing Your Data

No matter how careful you are, there is always the possibility that your portable device will be lost or stolen. It is critical that you take every precaution to ensure that thieves will not be able to access your private company information.

Use passwords correctly. In the process of getting to the information on your portable device, you probably encounter multiple prompts for passwords. Take advantage of this security. Don't choose options that allow your computer to remember passwords, don't choose passwords that thieves could easily guess, and use different passwords for different programs (see [Choosing and Protecting Passwords](#) for more information).

Consider storing important data separately. There are many forms of storage media, including floppy disks, zip disks, CDs, DVDs, and removable flash drives (also known as USB drives or thumb drives). By saving your data on removable media and keeping it in a different location (e.g., in your suitcase instead of your laptop bag), you can protect your data even if your laptop is stolen. You should make sure to secure the location where you keep your data to prevent easy access.

Encrypt files. By encrypting files, you ensure that unauthorized people can't view data even if they can physically

access it. You may also want to consider options for full disk encryption, which prevents a t... laptop without a pass phrase. When you use encryption, it is important to remember your passwords and pass phrases; if you forget or lose them, you may lose your data.

Install and maintain anti-virus software. Protect laptops and PDAs from viruses the same way you protect your desktop computer. Make sure to keep your virus definitions up to date. For more information, see [Understanding Anti-Virus Software](#).

Install and maintain a firewall. While always important for restricting traffic coming into and leaving your computer, firewalls are especially important if you are traveling and utilizing different networks. Firewalls can help prevent outsiders from gaining unwanted access. For more information, see [Understanding Firewalls](#).

Back up your data. Make sure to back up any data you have on your computer onto a CD-ROM, DVD-ROM, or network. Not only will this ensure that you will still have access to the information if your device is stolen, but it could help you identify exactly which information a thief may be able to access. You may be able to take measures to reduce the amount of damage that exposure could cause.

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

[Submit Rating / Comments](#)

**Nicor's Energy News – Municipal Version – May Feature Stories
FINAL 5/10/07**

Choosing a Natural Gas Supplier

Did you know your residents and businesses have the ability to choose a natural gas supplier other than Nicor Gas? The Nicor Gas Customer Select® program began as a pilot in 1998 for our commercial customers, offering them choice when it came to purchasing their natural gas supply. In 1999 the program opened up to some of our residential customers and in 2002 all of our customers became eligible to enroll.

Nicor Gas offers the Customer Select program because we believe competition in the natural gas market will encourage improvements in services and pricing choices, as well as lead to new products and services. The program continues to grow in popularity as 24% of commercial customers and 9% of residential customers are participating – that's more than 200,000 customers...and climbing.

Participation in Customer Select is strictly voluntary. Those customers not enrolled simply continue to purchase their gas supply from the utility, which is a line item cost on their monthly bill ("Natural Gas Cost"). Those who do enroll purchase their gas from another supplier, although the gas continues to be delivered through the Nicor Gas pipeline system. Customers also continue to receive maintenance and emergency services from Nicor Gas.

The natural gas cost paid by Nicor Gas customers is a pass-through cost. As a regulated utility governed by the Illinois Commerce Commission (ICC), the utility is not allowed to charge any mark up for the natural gas commodity. Instead, Nicor Gas gets its revenues from the monthly customer charge (a fixed fee) and delivery charges (based on the amount of gas used).

The alternate suppliers that participate in the Customer Select program are **not** regulated by the ICC, therefore they can create a variety of pricing offers that may save the customer money. Customers are encouraged to review their natural gas use history (found under "My Account" at nicorgas.com) and then speak with different suppliers to find out about their pricing options, services, incentives, and/or promotions. Typical programs offered include fixed price, market-based (index) price and variable price options.

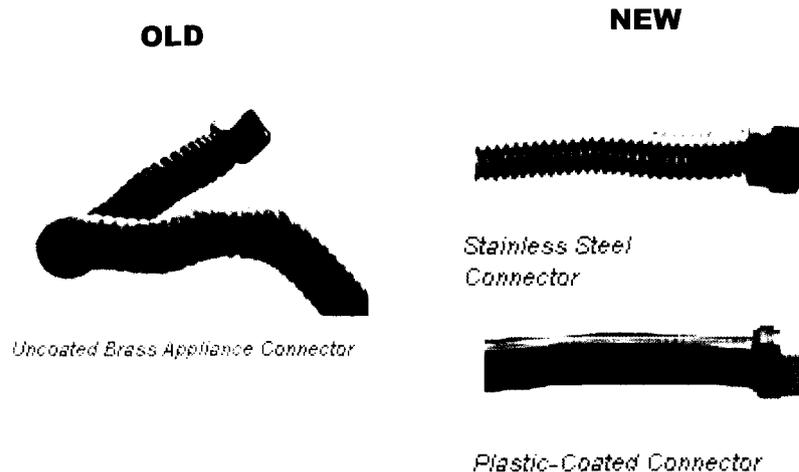
All suppliers are certified by the Illinois Commerce Commission and must meet certain business and credit standards. This includes a code of conduct related to telemarketing practices, handling of customer complaints, maintaining adequate gas supply and pipeline capacity, and obeying truth-in-advertising laws.

Residential customers will be receiving a special Customer Select advertisement with their June and July bills. For more information on the Customer Select program, including a full list of suppliers and sign up information, visit the "Choosing Your Supplier" section of nicorgas.com.

Appliance Connectors in the Home

Now that summer is approaching, many of your residents will be working on home improvement projects – some that include the purchase of new natural gas appliances. For several years now, Nicor Gas has been warning its customers regarding the potential danger of older brass appliance connectors with flawed end pieces that may break free of the brass tubing – causing a gas leak, explosion or fire. These connectors are the fuel supply lines to appliances such as gas ranges, water heaters and clothes dryers. While these types of connectors haven't been manufactured for more than 20 years, they can still be found in many older homes.

We encourage you to have your residents in older homes inspect their appliance connectors **without moving the appliance**. If the connector can't be accessed and inspected without moving the appliance, a qualified professional should be called to do the inspection. These connectors tend to be brittle and the slightest movement may cause it to break. If an old brass connector is found, **it should not be moved or touched in any way**. A qualified professional should be called immediately and the connector should be replaced with a new coated or uncoated stainless steel connector. Due to the potentially dangerous nature of the old brass connectors, Nicor Gas customers should **never** attempt to replace the connector themselves. Below are examples of the old brass connector and the new stainless steel connectors:



Nicor Gas customers can take the following steps to find a qualified professional to inspect and replace appliance connectors:

1. Call a licensed, insured and bonded contractor that they have used in the past
2. Look in the Yellow Pages for a licensed, insured and bonded contractor under the following headings:
 - Heating or Air Conditioning Contractors
 - Appliance Repair Dealers
3. Call Nicor Gas at 1 888 288-8110 to get a quote or schedule an inspection

It is recommended that you get several quotes to compare services and costs. For more information on appliance connectors and general natural gas safety issues, visit nicorgas.com and click on "Safety."

Font Size ▾

nicor



Nicor's Energy News

My ENERGY NEWS

Expand the Library

Ask an Expert

Newsletters

Tools You Can Use

Preferences

Cooling Problems? Natural Gas Can Solve Them

Print | PDF | E-mail | Logout

Cooling is a big energy user in most commercial and industrial facilities these days. On average, cooling accounts for 12 percent of all energy consumed in the commercial sector. In some applications, such as hospitals, restaurant, health clubs, supermarkets and certain manufacturing enterprises, cooling is required 24 hours a day all year long. Lodging, schools, office buildings and retail all have significant cooling loads, particularly in daytime hours. Many facilities struggle with balancing the high cost of electric cooling and the need to provide building comfort and appropriate indoor air quality.

While electric cooling still dominates the market, recent technological advances and changing energy markets have increased interest in natural gas cooling. Gas-fired absorption chillers, engine chillers and desiccant systems provide reliable and cost-effective cooling for a variety of applications. Used as a stand-alone system, or in combination with a conventional unit, natural gas cooling gives facility managers the flexibility to manage energy costs and provide a quality indoor environment. Below are some common cooling issues faced by facility managers across the country and how natural gas technologies can provide potential solutions.



You Might Also Be Interested In...

[Be Selective When Blocking Solar Heat Gain](#)

[Energy Conservation in Public Buildings](#)

[The Common Air Pollutants](#)

High peak demand charges are driving cooling costs through the roof.

For most facilities, the cost of electricity is made up of two components, consumption (kWh) and demand charges (kW demand). Many end users are surprised when kW demand capacity charges comprise as much as 50% of an electric bill. Demand meters record the rate of energy use over 15 minute time increments, and one energy intensive interval can result in a high demand charge applied over an entire month's electric bill. The attached article, [Understanding Peak Demand and Its Impact on Your Energy Bill](#), provides additional information.

Peak demand charges become a real problem when energy use is at its highest, say during the summer when the addition of high air conditioning loads puts a real strain on the electric grid. With adequate air conditioning a necessity for building comfort and indoor air quality, many facilities find themselves stuck in an annual cycle of spiraling operating costs.

Natural gas cooling is one way out of this dilemma. During the summer, when electric demand charges are going up, natural gas prices are typically at their lowest. A natural gas absorption or engine driven chiller, as a standalone system or in combination with electric air conditioning, can help reduce operating costs by dramatically lowering electricity consumption and peak demand charges.

Success Story – South Carolina medical center reduces peak demand charges after installing a gas-fired engine driven chiller. See [case study](#).

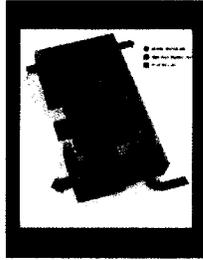
High summer cooling loads can narrow energy choices offered by a deregulated market.

With energy deregulation, there are many opportunities for consumers to negotiate favorable electricity rates based on the ability to control energy usage. Also, many utilities offer time-of-use and real-time electric rates. Hybrid cooling systems that combine both gas and electric chillers give facility operators the freedom to switch between gas and electric based on electric rates and optimize energy usage to their advantage.

Success Story – New hybrid plant allows CNN Center in Atlanta to save thousands by taking advantage of real-time pricing. See [case study](#).

High humidity levels drives up energy costs forcing air conditioning systems to work harder.

Humid air is more difficult to cool than dry air. Maintaining cooler temperatures is accomplished by regulating the temperature (sensible cooling) and humidity levels (latent cooling). Latent cooling generally accounts for about 30% of cooling load. Conventional air conditioning lowers humidity levels to some degree. Many facilities, such as laboratories, supermarkets, ice arenas, hospitals and many manufacturers, require lower humidity levels. For those with conventional cooling systems, the only option is to super chill the air (thus freezing out the moisture) and then reheating it. This is a very expensive process.



Gas-fired desiccant dehumidification systems provide a simple solution to remove the moisture from the air before it is conditioned. Desiccant systems utilize special materials (desiccants) that absorb moisture from incoming air. This allows the cooling unit to be set for optimum temperature, enabling the use of a smaller compressor and eliminating the need for excess chiller capacity. Together with a conventional air conditioning system, desiccant technology can help to optimize temperature and humidity control and lower cooling costs. Desiccant systems provide further benefits by improving indoor air quality and controlling mold and mildew.

Success Story – At a Georgia elementary school, a new desiccant system improves indoor air quality while avoiding costly overcooling and reheating of the old conventional system. See [case study](#).

In retail environments, frozen food display cases often cloud over, hiding products from customers.

In supermarkets and convenience stores, high humidity levels often cause frozen foods display case doors to fog over. This decreases visibility and obscures products from potential buyers. In addition, high moisture levels can encourage the growth of microbes that can affect food safety. A gas-fired desiccant dehumidification system, used in combination with a refrigeration system, can improve display case visibility and prevent frost build-up, thus making frozen products more attractive and accessible.

Success Story – Desiccant dehumidification system in a Texas supermarket makes customers more comfortable and products more appealing. See [case study](#).

Chemical refrigerants in conventional units are difficult to manage and may have a negative impact on the environment.

Conventional electrical air conditioning systems use chemical refrigerants, such as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), that are harmful to the ozone layer. Although use of these chemicals are being phased out by federal law and less harmful replacements are being developed, many building owners are concerned about the environmental impact of their existing cooling system.

Natural gas is a clean energy source that emits virtually no harmful emissions that can contribute to ozone depletion, climate change, or other environmental problems. Natural gas cooling equipment, such as absorption chillers, use plain water instead of chemicals, as a refrigerant.

Success Story – Minnesota school district eliminates chemical refrigerants through the use of absorption chillers. See [case study](#).

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

[Submit Rating / Comments](#)

Font Size ▾



Nicor's Energy News

My Energy News | Explore the Library | Ask an Expert | Newsletters | Tools You Can Use | Preferences

Choosing A Natural Gas Supplier

Print | PDF | E-mail | Logout

Did you know your residents and businesses have the ability to choose a natural gas supplier other than Nicor Gas? The **Nicor Gas Customer Select®** program began as a pilot in 1998 for our commercial customers, offering them choice when it came to purchasing their natural gas supply. In 1999 the program opened up to some of our residential customers and in 2002 all of our customers became eligible to enroll.

Nicor Gas offers the Customer Select program because we believe competition in the natural gas market will encourage improvements in services and pricing choices, as well as lead to new products and services. The program continues to grow in popularity as 24% of commercial customers and 9% of residential customers are participating – that's more than 200,000 customers...and climbing.

The natural gas cost paid by Nicor Gas customers is a pass-through cost. As a regulated utility governed by the Illinois Commerce Commission (ICC), the utility is not allowed to charge any mark up for the natural gas commodity. Instead, Nicor Gas gets its revenues from delivery charges that are based on the amount of gas used.

Participation in Customer Select is strictly voluntary. Those customers not enrolled simply continue to purchase their gas supply from the utility, which is a line item cost on their monthly bill ("Natural Gas Cost"). Those who do enroll purchase their gas from another supplier, although the gas continues to be delivered by Nicor Gas. Customers also continue to receive maintenance and emergency services from Nicor Gas.

The alternate suppliers that participate in the Customer Select program are **not** regulated by the ICC, therefore they can create a variety of pricing offers that may or may not save the customer money. Customers are encouraged to review their natural gas use history (found under "My Account" at nicorgas.com) before they speak with different suppliers to find out about their pricing options, services, incentives, and/or variable pricing options. Customers are cautioned to read the supplier's agreement carefully before signing and should keep in mind that they may be subject to considerable exit fees should they drop the supplier.

All suppliers are certified by the Illinois Commerce Commission and must meet certain business and credit standards. This includes a code of conduct related to telemarketing practices, handling of customer complaints, maintaining adequate gas supply and pipeline capacity, and obeying truth-in-advertising laws.

Residential customers will be receiving a special Customer Select advertisement with their June and July bills. For more information on the Customer Select program, including a full list of suppliers and sign up information, [visit our Web site](#).

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

Submit Rating / Comments

[Privacy Statement](#) | [Legal Notice](#)

Font Size ▾



Nicor's Energy News

My Nicor News | Explore the Library | Ask an expert | Newsletters | Tools You Can Use | Preferences

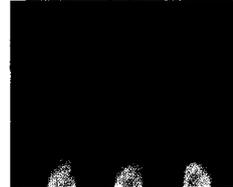
Natural Gas and Workplace Safety Guidelines

Print | PDF | E-mail | Logout

Natural gas is a clean, efficient, reliable and safe fuel used in a wide variety of commercial and industrial operations for heating, cooling, cooking and processing. As with any flammable substance however, natural gas can be hazardous if treated improperly. By following a few simple guidelines, you can help to ensure that your facility and employees are safe while working in and around natural gas equipment and appliances.

What is Natural Gas?

Natural gas is methane, a substance formed deep below the earth's surface. Natural gas is odorless and colorless and it is non-toxic. When used properly, natural gas is a safe, clean and reliable source of energy. Natural gas can be used to heat and cool your business, cook food, provide hot water, and is the fuel choice for industry.



You Might Also Be Interested In...

- [Emission Testing of Washington Metropolitan Area Transit Authority \(WMATA\) Natural Gas and Diesel Transit Buses](#)
- [The Energy Solutions Center Web site](#)
- [Natural Gas...It's Odorless, Colorless, and Extremely Flammable](#)

Natural Gas Safety Tips

- Make sure that all natural gas equipment and appliances are inspected by qualified personnel at least once per year.
- Keep all combustible material (chemicals, papers, boxes, solvents, etc.) at a safe distance away from natural gas equipment and appliances.
- Follow all manufacturers recommendations related to cleaning and maintenance for all natural gas equipment and appliances.
- Make sure that all areas of your facility are adequately vented and that all pipes and flues are in good condition.
- Install carbon monoxide detectors in all areas of your facility.
- Never hang tools or other devices on gas pipes and meters.
- Check pilot lights on natural gas appliances and make sure that they are burning mostly blue. Appliances with yellow burning flames should be serviced by a qualified professional immediately.

Dealing with Natural Gas Emergencies

Knowing how to recognize and properly react to potential natural gas emergencies can help to ensure the safety of you and your employees and minimize any damage to your facility.

Recognizing a Natural Gas Leak...

Natural gas is colorless and odorless. In order to make it easier to detect, a chemical called mercaptan that smells like rotten eggs has been added. This distinct odor may indicate a gas leak in the vicinity. Other signs include a hissing sound, or dirt or dust blowing from a hole in the ground.

If You Suspect a Natural Gas Leak...

- Vacate the building immediately and contact Nicor from another location at 888-642-6748.
- Do not attempt to locate the source of the leak yourself.
- Do not use any electrical devices, such as light switches, appliances, telephones or even door openers. They could ignite a spark and cause a fire or explosion.
- Don't use matches or lighters in the area.
- Do not start any vehicles in the area, and do not try to shut off any gas valves or equipment.
- Do not reenter your building until it has been inspected and cleared by a Nicor representative.

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

Submit Rating / Comments

Natural Gas Vehicles: Tax Incentives and Funding Opportunities

Print | PDF | E-mail | Logout

To help reduce America's dependence on foreign oil and to lower harmful emissions, the federal government and many state and local governments offer incentives for individuals, institutions and businesses to purchase and operate vehicles powered by natural gas and other clean burning alternative fuels. The incentives take the form of tax credits, reduced license fees, grants and lower sales or fuel taxes.



You Might Also Be Interested In...

- [Portal Tool Box Feature for Entrepreneurs-- by Randy Goldsmith](#)
- [Manufacturer's Agents National Association](#)
- [Venture Introduction, We Have Lift-Off](#)

What follows is a list of federal and state tax incentives and other funding opportunities designed to encourage the use of natural gas vehicles and support the development of natural gas vehicle infrastructure.

Federal Incentives

Alternative Motor Vehicle Credit - A tax credit for purchasers of alternative fuel vehicles, including those fueled by compressed natural gas (CNG). The tax credit equals 50% of the incremental cost of the vehicle. The credit is available on the purchase of light, medium and heavy duty vehicles. The credit is effective on purchases made after December 31, 2005 and expires on December 31, 2010. For details, see [Section 1341](#) of the Energy Policy Act of 2005 (Public Law 109-58)

Credit for the Installation of Alternative Fueling Stations - A tax credit is available for an amount equal to 30% of the cost of installing a natural gas vehicle refueling station. The credit is limited to \$30,000 in the case of commercial property. The credit is effective on equipment purchased as of January 1, 2006 and expires as of December 31, 2009. See [IRS Form 8911](#).

Clean School Bus Program - A U.S. EPA program that provides grants to school districts and related organizations for the replacement or retrofit of diesel powered buses with cleaner alternative fuels, including compressed natural gas (CNG). For more information, see the [EPA's Clean School Bus USA Website](#).

State Programs:

A number of states offer tax incentives and other funding opportunities for the purchase or conversion of natural gas and other alternative fuel vehicles. **The following list is an overview and is not intended as a complete list of available programs.** For detailed information, contact your state's [energy office](#) or [taxation agency](#).

Alabama - Natural gas vehicles are exempted from the excise tax charged for vehicles running on gasoline and diesel and instead are subject to a low annual flat fee. For details, see the [Alabama State Code](#) Section 40-17-160.

Arizona - Alternative Fuel and Alternative Fuel Vehicle Tax Exemption. Natural gas used to propel a motor vehicle is exempt from the [state use tax](#). Also exempt are NGV's if they were originally diesel vehicles that were converted to run on natural gas or other alternative fuel. See [Arizona State Statutes 42-5159](#).

Colorado - Prior to July 1, 2011, an income tax credit is available from the Colorado Department of Revenue for the incremental cost of purchasing an alternative fuel vehicle (AFV) or for the conversion of a vehicle to operate using an alternative fuel. Vehicles running on compressed natural gas are included in this credit. This credit is only available in the year during which the vehicle was purchased or converted, and a vehicle can qualify for this credit only one time. For detailed information, visit the Colorado Department of Revenue [Alternative Fuel Income Tax Credit web site](#).

Connecticut - A corporation business tax credit of 10% is available for the incremental cost of purchasing a new natural gas vehicle or other AFV. In addition, a 50% credit is available for expenditures relating to the installation of CNG or LNG vehicle refueling stations. Also new natural gas vehicle purchases and equipment used in natural gas vehicle conversions are exempt from sales taxes. These programs are in effect until July 1, 2008. Contact the Connecticut Department of Revenue at 860-297-5962 for more information.

Georgia - The Georgia Environmental Protection Division offers a 10%-20% income tax credit for the purchase or lease of low-emission vehicles (LEV) and zero-emission vehicles (ZEV). Vehicles fueled by natural gas are eligible. The incentive began in 2001 and all eligible vehicles must be powered solely by an alternative fuel source. For more information, see the Georgia Department of Natural Resources [LEV/ZEV Tax Credit Fax Sheet](#).

Illinois-

* The Illinois Alternate Fuels Rebate Program provides rebates for 80% of the incremental cost of purchasing an AFV or converting a vehicle to operate on an alternative fuel. The maximum amount of each rebate is \$4,000. Eligible vehicles include natural gas, propane, and electric. The Rebate Program was extended indefinitely in June 2003 and is currently funded. Eligibility is open to all Illinois residents, businesses, government units (except federal government) and

organizations who purchase or convert their vehicles to operate on an alternative fuel. See [Rebate Program web site](#) for more information.

* The Illinois [Clean School Bus Program](#) was established by the Illinois Environmental Protection Agency in November 2003 and provides funding to assist schools/school districts to reduce emissions from diesel-powered school buses through emission control retrofits, implementation of cleaner fuels including natural gas, and support for emissions reduction policies including those related to idle reduction.

Indiana- The Indiana Department of Commerce administers the Alternative Fuel Transportation Grant Program for projects that involve the purchase of alternative fuel vehicles, conversion of conventionally-fueled vehicles to operate on alternative fuels, installation of alternative fuel vehicle refueling facilities, purchase and use of renewable transportation fuels, or combinations of these categories. Alternative fuel vehicles include vehicles capable of operating on electricity, ethanol, propane, hydrogen and natural gas. They do not include hybrid electric vehicles. Grant amounts range from \$2,000 to \$30,000. Eligibility includes all qualifying Indiana-based businesses and institutions. For more information, visit the [Indiana Department of Commerce Energy Office](#).

Kansas- The state offers an income tax credit equal to 50% of the incremental or conversion cost of qualified AFVs placed in service on or after January 1, 1996 and before January 1, 2005. Credits range from up to \$3,000 for vehicles weighing under 10,000 pounds, to up to \$50,000 for vehicles 26,000 pounds or more. Credits range from \$2,400 to \$40,000 for vehicles placed in service after January 1, 2005. See the Kansas Corporate Commission [Alternative Fuel Tax Credit Website](#) for more information.

Louisiana- The state offers an income tax credit worth 20% of the cost of converting a vehicle to operate on an alternative fuel, 20% of the incremental cost of purchasing an OEM AFV, and 20% of the cost of constructing an alternative fuel refueling station. For the purchase of an OEM AFV, the tax credit cannot exceed the lesser of 2% of the total cost of the vehicle or \$1,500. Only those vehicles registered in Louisiana can receive the tax credit. See the [Alternative Fuel Vehicles Incentives Factsheet](#) for details.

Maine-

* Alternative Fuel Refueling Infrastructure Tax Credit. A tax credit is available for the construction or installation of, or improvements to, any refueling or charging station for the purposes of providing clean fuels to the general public for use in motor vehicles. The qualifying percentage is 25% for expenditures made from January 1, 2002 to December 31, 2008.

* Alternative Fuel Vehicle (AFV) and Refueling Infrastructure Loans.

The [Finance Authority of Maine](#) manages the Clean Fuel Vehicle Fund, a non-lapsing revolving loan fund that may be used for direct loans to finance all or part of any clean-fuel vehicle project.

Montana- An individual or business is allowed a state income tax credit for equipment and labor costs incurred to convert a motor vehicle licensed in Montana to operate on alternative fuel. The maximum credit that may be claimed in a year is up to 50% of the equipment and labor costs incurred but no more than \$500 for conversion of a vehicle with a gross weight of 10,000 pounds or less, or \$1,000 for heavier vehicles. Natural gas vehicles are eligible. See the [Montana State Code Section 15-30-164](#). Contact the Department of Revenue at 406-444-6900 for details.

Oklahoma- Oklahoma's main AFV incentive is a state income tax credit (direct subtraction from tax liability) of fifty percent of the alternative fuel conversion cost or new original equipment manufacturer (OEM) incremental cost. A tax credit of 10 percent of the total value of the vehicle up to \$1,500 is allowed on AFV resales if a tax credit has not been previously taken. A 50-percent tax credit is allowed on the cost of AFV fueling equipment including compression equipment and storage tanks. In addition the state offers an Alternative Fuel Vehicles Loan Program for school districts and private industry. For details, see the [Oklahoma Clean Cities Web site](#).

Oregon- The Business Energy Tax Credit (BETC) is available for the incremental cost of purchasing a new alternative fuel vehicle or converting an existing vehicle to operate on an alternative fuel. Compressed natural gas and liquefied natural gas qualify as alternative fuels. The tax credit is equal to 35% of costs and is taken over a five year period. Visit the [Oregon Department of Energy BETC web site](#) for more information.

Pennsylvania- The Alternative Fuels Incentive Grant Program (AFIG) offers grant funding for up to 20% of the cost of purchasing alternative fuel vehicles, or the cost of converting existing vehicles to operate on an alternative fuel. Natural gas vehicles qualify under the program. All public institutions and private companies registered in the Commonwealth are eligible. For details see the [AFIG Website](#).

Rhode Island- The State Energy Office administers a program that offers a rebate grant of \$2,000 toward the purchase of a dedicated alternatively fueled vehicle. See the [State Energy Office web site](#) for details or call 401-222-3370.

Texas - The [Texas Emission Reduction Program \(TERP\)](#) is a set of incentives designed to reduce air emissions in the state. Included are alternative fuel vehicle grants for new or converted on-road and off-road vehicles and engines, as well as a non-profit grant program for replacing aging diesel buses with alternative fuel vehicles.

Washington - Alternative Fuel Vehicle Annual Fee. In order to encourage the use of nonpolluting fuels, owners of compressed natural gas (CNG) powered vehicles are required to pay an annual license fee, based on gross vehicle weight rating (GVWR), instead of motor fuel excise taxes. Fees range from \$45 to \$250 per year.

West Virginia - Alternative Fuel School Bus Incentive. Any county that uses an acceptable alternative fuel for the operation of all or any portion of its school bus system is eligible for a reimbursement from the West Virginia Department of Education of up to 95% of the county's transportation cost for maintenance, operation, and related costs incurred by the use of the alternatively fueled school buses.

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

[Privacy Statement](#) | [Legal Notice](#)

Font Size ▾



Nicor's Energy News

My ENERCI News | Explore the eLibrary | Ask an Expert | Newsletters | Tools You Can Use | Preferences

Understanding Peak Demand and Its Impact on Your Energy Bill

Print | PDF | E-mail | Logout

With the summer cooling season approaching, more commercial and industrial facilities will pay attention to peak demand charges on their electric bill. High summer peak loads strain the electric grid, and customers are asked to share in the cost burden of chasing more expensive power. If you only understand the high kW demand charges after the fact, consider proactive strategies to lower your overall energy bill before electric grid capacity puts the strain on your energy budget.

The two components of an electric bill are driven by energy use (kWh) and system capacity (kW demand). All too often, we focus on the energy use component (cost per kWh), and are surprised when kW demand capacity charges comprise as much as 50% of an electric bill. When this happens, your average cost per kWh doubles, and this can wreak havoc on an energy budget.

What is Peak Demand?

The system demand on power plants that generate electricity varies throughout the year. Generating plants are large fixed assets, so many utilities utilize a strategy of using the largest most economical power plants to meet base load. It is costly to have a large generating plant idled, so electric utilities have been building "peaking" units that are smaller, more flexible, but unfortunately have higher operating costs. The strategy works best if the "peaking" units are only run for short periods, typically in the summer when cooling loads tend to create demand peaks. These peaking units alleviate some of the strain on the electric system supplying the base load.

Electric utilities want to discourage commercial and industrial customers from exacerbating the demand peak, so the rate structure is set up with higher charges that come into effect during these critical periods. These are called peak demand charges. The following table provides an example:

Energy Customer	Energy Use		Peak Demand		Total Monthly Cost	Average Cost per kWh
	kWh	Cost	kW	Cost		
Facility A	25,000 kWh	\$1,250 @ \$0.05/kWh	60 kW	\$600 @ \$10/kW	\$1,850	\$0.074/kWh
Facility B	25,000 kWh	\$1,250 @ \$0.05/kWh	100 kW	\$1,000 @ \$10/kW	\$2,250	\$0.090/kWh

The demand component at Facility B represents almost 45% of its electric bill, nearly doubling its average electric rate from \$0.05/kWh to \$0.09/kWh. Facility A is able to coordinate the use of motors and other large electric loads to lower its peak demand. Since peak demand periods are typically registered in 15 minute increments, the large electric loads are not allowed to run in the same 15 minute periods. These loads are, in effect, distributed over longer periods or shifted to other times to lower the potential strain on the electric grid.

Facility B cannot or chooses not to manage its large electric loads in this manner. If it is a manufacturer trying to meet a tight shipping date, it may not have a choice. Commercial facilities, such as an office building, may also choose not to compromise the comfort of workers during a hot summer day that is pushing its chillers to operate for long periods at full capacity. A hospital, communications facility, brokerage house, and data center are other examples of facilities that may be more limited in shifting large electric loads during critical periods.

One other difficulty in working with peak demand is trying to guess when it will occur. Since individual loads are typically not metered, some guesswork may be required. What is the total kW load of a particular piece of equipment, is it running at full capacity, which billing period is involved, etc? In some cases, electric utilities also charge a higher rate for a coincident peak. There are two demand peaks involved here: the utility system peak and the commercial or industrial customer peak. If the facility happens to peak at the same time as the utility system, the coincident peak demand charges can be quite high.

Strategies to Reduce Demand Charges

The first step is awareness. Becoming educated about peak demand and its effects on your energy bill is absolutely necessary. Look over your past energy bills and then be sure to know about any changes to your rate structure, particularly during the summer peak demand cooling season. In some cases, electrical loads can be shifted to less busy time periods. In other case where the loads cannot be shifted, you might consider some options that do not rely as heavily on electric power. For example, natural gas engine driven chillers can help commercial building owners reduce electric peak demand charges and lower operating expenses. Since cooling is generally the most significant cause of electric demand spikes, gas cooling has the potential to largely minimize or flatten electric peak load in a building. Engine driven chillers are often operated to maximize electric peak shaving. Thus, most facilities with engine driven chillers operate a "hybrid plant," which means that they have installed both an electric and gas powered chiller and operate the gas unit during times of peak electric demand.

Many hospitals, college campuses, large retail centers, and office buildings have gas engine or natural gas absorption chillers in place to control energy costs and to provide redundancy. Applications continue to expand where electric demand rates are

You Might Also Be Interested In...

- [Cooling Problems? Natural Gas Can Solve Them](#)
- [Cooling with Engine-Driven Chillers](#)
- [How Do They Do That? Gas Cooling](#)

highest due to system capacity constraints, and there a number of potential advantages over electric motor systems.

Lower Operating Costs — gas powered chillers can be utilized to reduce peak loads in applications with high peak demand charges.

Variable Speed Control — engine speed can be varied to match the cooling load without significant loss in efficiency.

Heat Recovery — during operation, the engine generates waste heat that can be recovered for refrigeration or for process and space heating. This can result in greater operating efficiency than similar electric units.

Fuel Choice — gas engine driven chillers can use natural gas or other sources, such as biogas, to provide cooling and hot water for space conditioning or process applications.

For those applications where biogas is available, engine driven chillers can be run on biogas alone or mixed with natural gas to provide an economical means of providing chilled water. Biogas can be found in wastewater treatment plants, landfills, dairies, animal feed lots, and food processing facilities.

For those applications with high peak demand charges, the economics of standard engine driven or natural gas absorption chillers can provide a favorable return on investment.

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

[Submit Rating / Comments](#)

NATURAL GAS QUALITY

Natural Gas Quality – Why It Matters to Your Company

Natural gas plays a vital role in the U.S. energy supply and in fueling commercial and industrial businesses like yours. Just as gas supply reliability is a top priority for your business, natural gas *quality* is also an important consideration for plant and energy managers.

The quality of natural gas your business receives could impact your operational reliability or environmental performance. For example, certain equipment or processes may be sensitive to heavy hydrocarbons, Btu level or composition changes.

Why is gas quality an issue now?

With rising gas demand, higher energy prices, price volatility, and the anticipated reduction in domestic natural gas production, the future national energy supply portfolio will be more diversified including liquefied natural gas (LNG). Many natural gas producers, importers and processors are seeking to change gas quality specifications and LNG importers want to bring gas to North American markets with varying Btu levels and composition from countries around the world. This variation in Btu levels and composition may differ from what you have experienced with historic deliveries.

To educate our customers about this important topic, Nicor Gas is going to present a 30-minute Gas Quality Webinar on July 17, 24 and 31 at 10:00 a.m. and will be conducting a customer survey. We encourage you to ask the appropriate technical personnel who have knowledge of your equipment and processes' operational requirements to participate in one of our Webinars and the customer survey.

To learn more or to participate in one of the Webinars, please contact us at businesscustomer@nicor.com by July 13.

Font Size ▾



My Nicor News | Expert Directory | Ask an Expert | Newsletters | Tools You Can Use | Preferences

Natural Gas Quality – Why It Matters

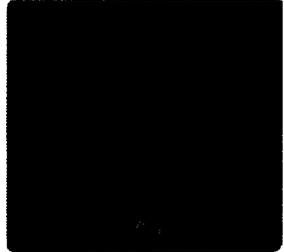
Print | PDF | E-mail | Logout

Natural gas plays a vital role in the U.S. energy supply and in fueling commercial and industrial businesses in your municipality. Just as gas supply reliability is a top priority for these businesses, natural gas quality is also an important consideration for plant and energy managers responsible for energy delivery at these facilities. It may also be a concern for your municipal facility managers and public works directors.

The quality of natural gas these businesses receive could impact their operational reliability or environmental performance. For example, certain equipment or processes may be sensitive to heavy hydrocarbons, Btu level or composition changes.

Why is gas quality an issue now?

With rising gas demand, higher energy prices, price volatility, and the anticipated reduction in domestic natural gas production, the future national energy supply portfolio will be more diversified including liquefied natural gas (LNG). Many natural gas producers, importers and processors are seeking to change gas quality specifications and LNG importers want to bring gas to North American markets with varying Btu levels and composition from countries around the world. This variation in Btu levels and composition may differ from what has been experienced with historic deliveries at commercial, industrial and municipal facilities.



To educate our customers about this important topic, Nicor Gas is going to present a **30-minute Gas Quality Webinar** on July 17, 24 and 31 at 10:00 a.m. and will be conducting a customer survey. We encourage you to pass this information along to your appropriate technical personnel as well as those in your business community who would benefit from the Webinar or would like to participate in the survey.

To learn more or to participate in one of the Webinars, please contact us at businesscustomer@nicor.com by July 13.

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

Font Size ▾

nicor

Nicor's Energy News

My Nicor News | Explore the Library | Ask an Expert | Newsletters | Tools You Can Use | Preferences

New Energy Bill Would Extend Energy Efficiency Tax Incentives

Print | PDF | E-mail | Logout

The Energy Policy Act of 2005 established a number of tax incentives for energy efficiency technologies. The Energy Efficiency Incentives Act of 2007 (EXTEND) introduced into Congress earlier this year would extend and improve upon these incentives. The bill (S.822/H.R.1385) is co-sponsored by a strong bi-partisan coalition. It is now before the House Committee on Ways and Means and should see action later this year.



You Might Also Be Interested In...

[Energy Smart Guide to Campus Cost Savings](#)

[Measuring Your Company's Carbon Footprint](#)

[ENERGY STAR: Energy Savings Opportunities for Petroleum Refineries](#)

Changes to the Commercial Building Tax Deduction

The EXTEND Act would extend the tax deductions for energy efficient property installed in commercial buildings as part of heating and cooling systems, interior lighting systems, or the building envelope.

Under current law, the deductions are set to expire at the end of 2008. The new bill would extend them to the end of 2012. In addition, property certified by 2012 but not placed into service until 2014 would also be eligible for the deduction.

Equally important, the EXTEND Act increases the amount of allowable deductions. Currently, building owners can deduct up to \$1.80 per square foot for the entire energy efficiency project and up to 60 cents per square foot for individual building systems. The new bill would increase these numbers to \$2.25 and 75 cents per square foot. A deduction has also been created for public property.

Other Key Provisions

The EXTEND Act also includes a number of key provisions that extend important EAct tax incentives and create important new incentives to encourage investment in energy efficiency.

New tax deduction for energy-efficient low-rise buildings. This new provision is meant to cover multi-family dwellings or others not covered under the ASHRAE Standard 90.1: 2001. To qualify, a building must achieve certified energy savings of 20% or more. The maximum allowable deduction is equal to the cost of the energy efficiency investment, subject to a cap of \$12,000. The provision is set to expire at the end of 2011.

Extension of the tax credit for energy efficient new homes. Builders of new homes that are certified to have annual heating and cooling energy consumption that is at least 50% below that of a typical home are eligible for a \$2,000 credit. Builders of energy efficient manufactured homes are eligible for a \$1,000 credit. This provision is set to expire in 2008, but the new energy bill would extend it to the end of 2011. In addition, rental units and owner-built homes would now be eligible for the credit.

New tax credit for energy saving home retrofits. Homeowners will be eligible for a tax credit against energy efficiency improvement expenditures. Qualified homes must achieve certified energy savings of 20% or more. The credit begins at \$800 for a 20% savings and increases on a sliding scale to \$4,000. Both owner-occupied and rental units are eligible.

Incentives for energy savings certifications. A new tax credit is proposed for those who perform energy efficiency certifications of buildings. The new tax credit covers costs associated with the training, certification, and purchase of equipment for individuals who perform the certifications needed by taxpayers to qualify for EAct energy efficiency tax incentives.

Extension of tax credits for residential energy efficient equipment. The new bill would extend these credits from 2008 through 2011. Allowable credits range from \$150 to \$300. They include furnaces, water heaters, or air conditioners that meet certain annual fuel utilization efficiency (AFUE) ratings.

How would you rate the quality of this content? Select a star rating and click submit below

Should You Hire An Energy Manager?

Print | PDF | E-mail | Logout

With ever-rising energy costs, energy management is more than just the latest trendy catch phrase—it is a fundamental component of sound business performance. For many organizations, a focus on saving energy is essential to the bottom line. The trouble is that, while facility managers may be able to recognize energy savings opportunities, they often lack the time or skills necessary to turn these opportunities into reality. The solution for a growing number of companies is to hire an energy manager.



You Might Also Be Interested In...

[Energy Star Buildings and Plants](#)

[Electronic Programmable Time Controls](#)

[Laundry Operations: Reducing Your Energy Load](#)

So What Is An Energy Manager Anyway?

An energy manager (EM) serves as the "energy champion" within an organization, providing leadership and guidance on energy management issues. The energy manager oversees an organization's energy use to maximize energy efficiency. This would include all systems within the facility...lighting, HVAC, production equipment, etc. The energy manager serves as a single point of accountability within an organization to develop goals, oversee the implementation of energy projects and act as a liaison between senior management, engineering, and facility maintenance.

Energy managers can either be a full-time internal employee, or a part-time or contracted outside energy management consultant.

What Does An Energy Manager Do?

The typical energy manager's job includes a number of important roles:

- Monitor the energy use of the entire organization.
- Determine strategies for purchasing energy and make recommendations regarding energy providers.
- Make sure that all electrical and mechanical systems are operating at peak energy efficiency.
- Provide advice on purchasing energy efficient equipment and technology.
- Conduct energy audits to identify opportunities for saving energy.
- Evaluate energy efficiency initiatives and communicate them to senior management.
- Oversee and report on the implementation of energy efficiency projects.
- Formulate an energy management plan for the organization.
- Set energy efficiency goals and objectives.
- Put together a plan for achieving those goals and objectives and monitor results.
- Promote energy efficiency and conservation throughout the organization through education and training.

Who Benefits From Hiring An Energy Manager?

Larger commercial and industrial companies can benefit significantly from having a full-time energy manager. Like any good resource manager, an EM's role is to help cut costs and improve the bottom line. This will, in turn, enable the organization to focus more resources on research, marketing, and production, increasing their competitiveness in the marketplace. Institutional facilities such as hospitals, school districts, and colleges and universities, which often have complex and far-flung energy structures, can also benefit greatly. The energy manager can serve as a focal point for ensuring energy efficiency, reliability, and safety.

For smaller organizations, hiring a full-time energy manager may not be feasible. Good energy management is critical for any company, however, no matter what its size. Smaller facilities should consider appointing someone from inside the organization to oversee energy management on a part-time basis or hire an outside energy management consultant as a contractor. If appointing someone from inside, it is important that the individual be given the appropriate level of authority and access to resources to enable them to function. It is also necessary to establish some form of accountability for that individual in his or her new role.

What are the Challenges?

Like most things in life, hiring an energy manager introduces potential challenges to an organization. Energy managers require resources in order to be effective. The energy efficiency projects that an EM might advocate could also require significant investment. While these projects may result in substantial energy savings over the long-term, they may be costly in the short-term. In addition, the introduction of an energy manager may result in tension, as there could be turf wars with engineering, facility operations, and even senior management. With time however, a good energy manager should be able to smooth out any tensions and establish a good working relationship with each department.

Before hiring an energy manager, an organization should consider the following questions.

Do we have significant energy savings opportunities available? Older facilities or organizations with outdated equipment could be good candidates. A first step would be to conduct an energy audit to identify the potential to improve energy efficiency.

Is senior management on board? Cooperation is required from all departments in order to lower consumption and make energy efficiency initiatives work. An energy management team, with representatives from all departments,

should be formed to work with the energy manager. Directives from top management are r things happen. Senior management must be fully committed to energy efficiency for an ene effective.

Do we have the necessary resources? Funding will be needed to pay the energy manager's salary and benefits as well as for proposed energy efficiency projects and initiatives.

What Qualifications Should An EM Have?

Energy managers typically have a bachelor's or master's degree in mechanical engineering or some related technical field. Some have a business degree combined with a strong background in facilities management or energy efficiency issues. An energy manager should have good knowledge of mechanical systems, lighting, and HVAC. Strong oral and written communication skills are a plus. Experience working with utilities and an intricate knowledge of the energy industry are also important.

The Association of Energy Engineers has a Certified Energy Manager Program that is the established professional accreditation in the field of energy management. If an energy professional has the designation "CEM," that means they have earned this certification. The program is recognized by the U.S. Department of Energy, the Federal Energy Management Program, and numerous state energy offices. To qualify, an individual must have a certain level of education and experience, pass a rigorous exam, and pursue a program of continuing education.

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

Submit Rating / Comments

Font Size ▾

nicor

Nicor's Energy News

My ENERGI... | Explore the Library | Ask an Expert | Newsletters | Tools You Can Use | Preferences

The GreenSpace: Local vs. Organic: What's On Your Dinner Plate?

Print | PDF | E-mail | Logout

A little bit of local produce, a scoop of organic, a slice of free-range, maybe topped off with a dollop of something fair-trade certified. No more for me, please—I'm stuffed. Food with principals behind it has become all the rage these days, and you'll likely be hearing a lot more about it in days to come. Now that organic has gone mainstream (you know that's happened when [organic Oreos](#) start popping up on the shelf), there's a new catchphrase making the rounds: "Local is the new organic." You'll also need to become well-versed in new terms like "food miles" (how far your food travels), "big organic" (large-scale organic farmers), and "food shed" (the region from which your local food products come from). What's a poor, green-conscious, omnivore to do?



You Might Also Be Interested In...

[What's Going On With Ethanol?](#)

[Prospects Improve For IGCC Technology In U.S., But Challenges Remain](#)

[The GreenSpace: The Gray Wave is Coming](#)

Local vs. Organic is shaping up to one of the bigger food fights in recent memory, but it's a meaningless argument in many ways. (Sort of like choosing between chocolate and peanut butter—they're both great on their own and, sometimes, even better together.) There are plenty of people who will tell you that organic is always the best choice. But what if that bag of certified organic lettuce in your New Jersey grocery store has "grown in California" stamped on it? There are plenty of other people who will counter that the amount of fossil fuel consumed to transport that lettuce to you washes out any points you scored by buying organic in the first place (even though there are some acres in California that didn't have pesticides sprayed on them because of your choice), and you should have gotten your greens from the guy growing them just outside of Parsippany.

There seems to be little doubt that the food we eat is becoming increasingly well-traveled. The University of Iowa's [Leopold Center for Sustainable Agriculture](#) found that fresh produce arriving by truck at the Chicago Terminal Market from within the continental United States traveled an average one-way distance of 1,518 miles in 1998, up 22% from the 1,245 miles it traveled in 1981. It's also not all coming from within the U.S., in case you haven't noticed. Today, the typical American meal contains, on average, ingredients from at least five other countries. The USDA reports that 39% of the fruit, 12% of vegetables, 40% of lamb, and 78% of fish and shellfish consumed by Americans is imported from other countries. Walk through a conventional grocery store in February, and it's more international than a United Nations conference—apples from New Zealand, grapes from Chile, and canned pumpkin from Peru.



There's little doubt that buying organic produce has caught on with consumers in a big way, with nearly two-thirds of Americans having bought organic foods and drinks in 2005, according to *Consumer Reports* (although organic still only counts for around 2.5% of the total food market), and choosing organic has some environmentally-attractive facets. (If you're confused about what's organic and what isn't, the USDA's [National Organic Program](#) has a lot of information.) It's also reasonable to argue that an awful lot of our energy resources are consumed by trucking in turnips from Tunisia. But choosing organic or local doesn't have to be a mutually exclusive decision; there's no need for a "vs." in the equation.

The best choice may be to take a serving of each and, as Grandma used to say, eat a little of everything on your plate. The gold standard may be to look for locally-produced *and* organic food products, but it's not a very realistic option to stick with long term for most of us. The reality is that, unless you live in a perfect food growing laboratory like central California, it's really difficult for local farmers to produce enough truly organic produce to meet any real level of demand. Regions with high humidity, which encourages the growth of bacteria and fungi, make it expensive and risky for most farmers to grow those apples without spraying them at *some* point. Keep in mind also that many small, local farmers also can't afford the extra

expense of having their product certified organic. The farmers you see at your local farmers market typically already have operating profit margins of negative 24.5%, according to the USDA. Choosing to survive on only locally-produced food products, as the [locavores](#) would have you do, could also make for some serious belt-tightening during a Midwest winter.

Our best advice? Be aware of both options, choose both if you can, but don't get carried away. If there's a farmers market on your local shopping route, stop and take a look, especially during the growing season. You can feel good about supporting the little guy who's also your "neighbor." If you're concerned about organic options, ask them about their farming practices—you'll likely find that most are trying to be as organic as they can afford to be. If a farmer's market isn't an option, let your neighborhood food retailer hear your voice, and vote with your food dollars; they can carry a surprising amount of weight. You might also want to look into Community Supported Agriculture (CSA) options in your area. For a subscription fee, you'll get several months' worth of seasonal produce and, in some cases, meat and eggs—often delivered to your door or at least nearby.



You can investigate all of your locally-produced food options through sites like [Local Harvest](#) and the [farmer's market maps](#) available on the USDA Web site.

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

[Submit Rating / Comments](#)

NICOR'S ENERGY NEWS – JULY NICOR STORIES* FINAL 7/11/07

**Note: The Sponsorship story should appear in the "Community Relations" version only. The Webinar reminder should appear in both versions*

Nicor Sponsorship Partners – A Natural (Gas) Fit

With summer in full swing, your residents are enjoying outdoor activities and events that enhance their "fun in the sun" experiences. In addition to its support of community-based volunteer and philanthropic efforts, Nicor supports family fun through its sponsorships of the world-renowned Brookfield Zoo and minor league baseball's finest – The Kane County Cougars.

"Creature Comforts" at Brookfield Zoo

Brookfield Zoo is a family entertainment bonanza featuring a myriad of animal exhibits – including its latest addition, "Stingray Bay," where guests can touch a "de-barbed" cownose or southern stingray. During the summer, the zoo also features its "Butterflies!" exhibit where guests are surrounded by these fluttering beauties. The zoo's dolphin show is a perennial favorite, while its carousel provides thrills for the young and "young at heart."

Nicor is proud to be Brookfield Zoo's "Provider of Creature Comfort." We use this moniker because of our "behind-the-scenes" presence at the zoo. Amidst all the fun and excitement at the zoo, natural gas is used to produce electricity via large engines – ensuring that power outages are eliminated and the animals' environments are kept at constant comfortable temperatures.

Nicor also provides "people comfort" to weary guests in need of a lift through the zoo's Motor Safari tram system. The Motor Safari is powered by clean-burning natural gas, which is helpful for the environment. Some of the trams are even decked out in a new eye-catching, "wild" animal-skin design.

Brookfield Zoo is open year-round. For more information, visit www.brookfieldzoo.org.

Kane County Cougars – Baseball...and a lot more

If the Nicor-sponsored "squishy baseballs" being tossed in the crowd, the between-innings contests and entertainers, the mouth-watering food selections and spectacular fireworks shows aren't enough to keep you busy at a Kane County Cougars game, then you may want to try actually watching the baseball game taking place on the field.

Playing their home games at Elfstrom Stadium in Geneva, this Oakland A's minor league "A"-level affiliate has been entertaining families since 1991. As a matter of fact, the Cougars welcomed their 7 *millionth* fan to the park in 2006. Many Cougars players have moved on to the Major Leagues including Scott Podsednik, Josh Beckett, and Dontrelle Willis.

You'll find Nicor signage inside the stadium, but you're most likely to notice Nicor *outside* the stadium – especially if you're parked far away. The Cougar's parking lot tram system

runs on clean-burning natural gas. So you can catch a ride to your car while knowing you're riding aboard a vehicle that's good for the environment.

The Cougars continue play through the end of August and ticket prices start at just \$8.00. Upcoming promotions include "Jimmy Buffett Day" on August 12 and "Bark in the Park" on August 27. For more information or to buy tickets, visit www.kccougars.com.

#

Reminder – Gas Quality Webinar

You still have time to register for a free 30-minute Gas Quality Webinar taking place on July 24 and 31 at 10:00 a.m.

With rising gas demand, higher energy prices, price volatility, and the anticipated reduction in domestic natural gas production, the future national energy supply portfolio will be more diversified, including liquefied natural gas (LNG). Many natural gas producers, importers and processors are seeking to change gas quality specifications and LNG importers want to bring gas to North American markets with varying Btu levels and composition from countries around the world. This variation in Btu levels and composition may differ from what you have experienced with historic deliveries.

We encourage you to ask the appropriate technical personnel who have knowledge of your equipment and processes' operational requirements to participate in one of our Webinars and our customer survey, (LINK TO <http://survey.nicor.com/surveys/gas/content/gas.asp>) that will help us address your gas quality concerns. Please submit your responses **no later than August 17, 2007**.

To register for a Webinar, please select the date you'd like to participate:

Register for July 24 Webinar (LINK TO <https://www.gotomeeting.com/register/252700984>)
Register for July 31 Webinar (LINK TO <https://www.gotomeeting.com/register/452015944>)

We look forward to presenting this critical information to you. Please feel free to forward this information to those in your organization you feel may benefit from learning more about natural gas quality and could participate in our survey.

#

Font Size ▾

nicor

Nicor's Energy News

My Nicor News | Expert's Library | Ask an Expert | Newsletters | Tools you Can Use | Preferences

Emergency Planning: Is Your Facility Prepared?

Print | PDF | E-mail | Logout

Every year emergencies take their toll on business and industry— in lives and dollars. But something can be done. Business and industry can limit injuries and damages and return to normal operations more quickly if they plan ahead.



You Might Also Be Interested In...

- [National Weather Service Solutions for Breaking Up Those Ice Dams](#)
- [Hurricanes: When, Where, and How Big?](#)

What is an Emergency?

An emergency is any unplanned event that can cause deaths or significant injuries to employees, customers, or the public, or it can shut down your business, disrupt operations, cause physical or environmental damage, or threaten the facility's financial standing or public image. Obviously, numerous events can be "emergencies," including:

1. Fire,
2. Hazardous materials incident,
3. Flood or flash flood,
4. Hurricane,
5. Tornado,
6. Winter storm,
7. Earthquake,
8. Communications failure,
9. Power and/or natural gas outage,
10. Radiological accident,
11. Civil disturbance,
12. Loss of key supplier or customer, or
13. Explosion.

Emergency management is the process of preparing for, mitigating, responding to, and recovering from an emergency. To be successful, emergency management requires upper management support. The chief executive sets the tone by authorizing planning to take place and directing senior management to get involved.

When presenting the "case" for emergency management, avoid dwelling on the negative effects of an emergency (e.g., deaths, fines, criminal prosecution) and emphasize the positive aspects of preparedness. The following are examples of such aspects:

- Preparedness helps companies fulfill their moral responsibility to protect employees, the community and the environment.
- It facilitates compliance with regulatory requirements of Federal, State, and local agencies.
- It enhances a company's ability to recover from financial losses, regulatory fines, loss of market share, damages to equipment or products, or business interruption.
- It reduces exposure to civil or criminal liability in the event of an incident.
- It enhances a company's image and credibility with employees, customers, suppliers, and the community.
- It may reduce your insurance premiums.

What is an Emergency Action Plan?

An emergency action plan (EAP) is a formal list of procedures to be implemented in the event of an emergency. The following table lists many of the considerations that should be a part of a comprehensive EAP.

General Issues	
Does the plan consider all potential natural or man-made emergencies that could disrupt your workplace?	i.e., fires, explosions, floods, hurricanes, tornadoes, toxic material spills, radiological and biological accidents, civil disturbances, and workplace violence.
Does the plan consider all potential internal sources of emergencies that could disrupt your workplace?	Conduct a hazard assessment of the workplace to identify any physical or chemical hazards that may exist that could cause an emergency.
Does the plan consider the impact of these internal and external emergencies on the workplace's operations and is the response	Brainstorm worst-case scenarios, asking yourself what you could do and what would be the likely impact on your operation, and devise appropriate responses.

tailored to the workplace?	
Does the plan contain specific emergency procedures for hurricanes and tropical storms?	Hurricanes and tropical storms present special hazards that should be included in the emergency action plan for businesses in coastal locations. Detailed plans should include emergency preparation procedures, employee communications, and evacuation procedures and timelines.
Does the plan contain a list of key personnel with contact information, as well as contact information for local emergency responders, agencies, and contractors?	Keep your list current and make provisions for an emergency communications system such as a cellular phone, a portable radio, or other means, so that contact with local law enforcement, the fire department, and others can be swift.
Does the plan contain names, titles, departments, and telephone numbers of individuals to contact for additional information or an explanation of duties and responsibilities under the plan?	List names and contact information of individuals responsible for implementation of the plan.
Does the plan address how vital records and data will be secured?	The plan should identify vital records (personnel files, financial data, contracts, etc.) and designate how they should be protected. For example, which records should be covered or waterproofed in the event of a storm and which records should be moved in an evacuation. Data files should be backed up periodically and stored separately and moved off site in an evacuation.
Does the plan address how rescue operations will be performed?	Unless you are a large employer handling hazardous materials and processes, or have employees regularly working in hazardous situations, you will probably choose to rely on local public resources who are trained, equipped, and certified to conduct rescues. Make sure any external department or agency identified in your plan is prepared to respond as outlined in your plan. Untrained individuals may endanger themselves and those they are trying to rescue.
Does the plan address how medical assistance will be provided?	Most small employers do not have a formal internal medical program and make arrangements with medical clinics or facilities close by to handle emergency cases and provide medical and first-aid services to their employees. If an infirmary, clinic, or hospital is not close to your workplace, ensure onsite personnel have adequate training in first-aid.
Does the plan identify how or where personal information on employees can be obtained in an emergency?	In the event of an emergency, it could be important to have ready access to personal information about your employees. This includes their home telephone numbers, the names and telephone numbers of their next of kin, and medical information.
Evacuation Policy & Procedure	
Does the plan identify the conditions under which an evacuation would be necessary?	The plan should identify the different types of situations that will require an evacuation of the workplace.
Does the plan identify a clear chain of command and designate a person authorized to order an evacuation or shutdown of operations?	It is common practice to select a responsible individual to lead and coordinate your emergency plan and evacuation. It is critical that employees know who the coordinator is and understand that this person has the authority to make decisions during emergencies.
Does the plan address the types of actions expected of different employees for the various types of potential emergencies?	The plan may specify different actions for employees, depending on the emergency. For example, employers near coastal areas may have a specific plan for employees to evacuate to an interior location for hurricanes and tropical storms. However, for tornadoes, the plan may direct employees to assemble in a specific location inside the facility.
Does the plan designate who, if anyone, will stay to shut down critical operations during an evacuation?	You may want to include in your plan locations where utilities (electric and gas) can be shut down for all or part of the facility. Gas can be shut off at the gas valve per individual end-use application in your facility but do not shut off your gas supply at the line side of the meter. Pressure needs to be maintained to keep water or other containments out of the gas main lines.
Does the plan outline specific evacuation routes and exits and are those posted in the workplace where they are easily accessible to all employees?	Most employers create maps from floor diagrams with arrows that designate the exit route assignments. These maps should include exits, assembly points, and equipment (fire extinguishers, first-aid kits, spill kits) that may be needed in an emergency. Exit routes should be clearly marked, well lit, and wide enough to accommodate the number of evacuating personnel.
Does the plan address procedures for assisting people during evacuations, particularly those with disabilities or those who do not speak English?	Many employers designate individuals as evacuation wardens to help move employees from danger to safe areas during an emergency. Generally, one warden for every twenty employees should be adequate, and the appropriate number of wardens should be available at all times during working hours. Wardens may be responsible for checking offices and bathrooms before being the last person to exit an area, as well as ensuring that fire doors are closed when exiting. Employees designated to assist in emergency evacuation procedures should be trained in the complete workplace layout and various alternative escape routes.
Does the plan identify one or more assembly areas (as necessary for different types of emergencies) where employees will gather and is a method for accounting for all employees in place?	Accounting for all employees following an evacuation is critical. Confusion in the assembly areas can lead to delays in rescuing anyone trapped in the building, or unnecessary and dangerous search-and-rescue operations. To ensure the fastest, most accurate accounting of all your employees, consider taking a head-count after the evacuation. The names and last-known locations of anyone not accounted for should be passed on to the official in charge.

Does the plan address how visitors will be assisted in evacuation and accounted for?	Some employers have all visitors and/or contractors sign workplace. The hosts and/or area managers, if established, are often assisting these individuals to evacuate safely.
Reporting Emergencies and Alerting Employees in an Emergency	
Does the plan identify a preferred method for reporting fires and other emergencies?	Dialing 911 is a common method for reporting emergencies if external responders are utilized. Internal numbers may be used. Internal numbers are sometimes connected to intercom systems so that coded announcements may be made. In some cases, employees are requested to activate manual pull stations or other alarm systems.
Does the plan describe the method to be used to alert employees, including disabled workers, to evacuate or take other action?	Make sure alarms are distinctive and recognized by all employees as a signal to evacuate the work area or perform other actions identified in your plan. Sequences of horn blows or different types of alarms can be used to signal different responses or actions from employees. Consider making available an emergency communications system, such as a public address system, for broadcasting emergency information to employees. You may want to consider auxiliary power supplies in the event of electrical failure.
Employee Training & Drills	
Does the plan identify how and when employees will be trained, so that they understand the types of emergencies that may occur, their responsibilities, and actions as outlined in the plan?	Training should be offered to employees when you develop your initial plan and when new employees are hired. Employees should be retrained when there is a change in the layout or design of the facility, new equipment, hazardous materials, or processes that affect evacuation routes, or when new types of hazards are introduced that require special actions.
Does the plan address how and when retraining will be conducted?	If training is not reinforced, it will be forgotten. Consider retraining employees annually.
Does the plan address if and how often drills will be conducted?	Once you have reviewed your emergency action plan with your employees, and everyone has had the proper training, it is a good idea to hold practice drills as often as necessary to keep employees prepared. After each drill, evaluate its effectiveness; identifying strengths and areas for improvement.

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

Font Size ▾

nicor

Nicor's Energy News

My Nicor News | Explore the Library | Ask an Expert | Newsletters | Tools You Can Use | Preferences

Getting the Most From Your HVAC System

Print | PDF | E-mail | Logout

Heating, ventilating, and air conditioning (or HVAC) systems typically consume between thirty and forty percent of the total energy used in a building. A well-thought out and well-executed preventative maintenance program will not only keep your system intact and ensure maximum building comfort, but it can result also result in huge savings in equipment and energy costs. Here are some basic steps you can take that should help to lower HVAC costs, raise comfort levels, and improve your HVAC system's performance.



You Might Also Be Interested In...

[Preventive Maintenance Checklist](#)

[Cutting Your Natural Gas Bill: Ten Simple Steps](#)

[Let EPA and EnergyStar Help Your Business Save Money This Winter](#)

Inspect and Maintain

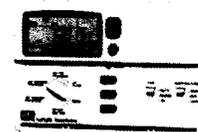
Your system should be inspected by a qualified HVAC service technician on an annual basis. Be sure all dampers and linkages are connected and are opening and closing as intended. All heat transfer coils should be cleaned, and air filters should be cleaned or replaced. Make sure that hot water and steam pipes are insulated, and that duct systems are gasketed or sealed with mastic. All motors should be inspected and belts checked for tightness. Check to see that the system is charged with the right type and amount of refrigerant - too much or too little will have an impact on your operating costs. In general, ten to thirty percent of energy usage can be saved just by implementing good maintenance practices.

See also:

- [Is Your Boiler Ready for the Heating Season?](#)
- [Preventive Maintenance Checklist for Air Conditioning Systems](#)

Install Controls

If you haven't already, put programmable thermostats or timers in place. These will allow you to regulate temperature in unoccupied areas, raising or lowering the temperature as appropriate. The typical rule of thumb is that the savings achieved through this strategy can amount to two percent per degree, raised or lowered, or perhaps higher for some applications. Temperature settings should be verified periodically and adjusted as needed for the changing seasons. For larger facilities, consider the installation of an energy management system.



See also:

- [ENERGY STAR Programmable Thermostats Website](#)
- [Energy Management Systems: An Introduction](#)

Maintain the Building Envelope

Your building envelope consists of doors, windows, wall, roof and insulation. It is the barrier that protects your indoor environment from the hot or cold outside air. The condition of your building envelope can strongly impact the efficiency of your HVAC system, occupant comfort and overall building performance. It is important to regularly weatherize windows and door by filling cracks and weather-stripping around gaps where climate controlled air can escape. If you have older windows, install storm windows or replace them with newer, more efficient units. Effective insulation also keeps your building envelope strong and saves on energy costs.

See also:

- [Building Envelope: Issues and Technologies](#)
- [Understanding the Basics of Insulation](#)
- [Buying for Energy Efficiency: Windows](#)

Have an Energy Audit Conducted

A qualified HVAC auditor will evaluate the efficiency of primary and auxiliary HVAC equipment, provide you with an update on the condition of equipment, and analyze potential system improvements that will have the greatest impact. Your mechanical service provider can most likely schedule an audit for you.

Consider Heat Recovery Options

Although generally most cost effective for industrial facilities, there are other possible settings where heat recovery may be effective. If your facility has sufficient waste heat from its HVAC system that would normally be exhausted from the building, target a use for that heat (i.e., water heating). These two elements (cooling and water heating) can take place at the same time, making heat recovery a viable system improvement.

Economizers Can be Beneficial

In many instances, high heat gains inside a building require air conditioning systems to operate even during periods of mild weather. An economizer can bring in large quantities of outside air during these periods to give the mechanical cooling system

a break. These systems typically involve sensors to compare the temperature or humidity of the air. Be aware that computer rooms, or other areas with specialized operating conditions, may use economizers due to their unique environmental requirements.

See also:

- [Basics of HVAC Economizers](#)

Upgrading Your HVAC Equipment

Maintenance costs and comfort problems increase each year until, when the unit is about 20 years old, facility managers have to decide between a major overhaul or complete replacement. The decision to overhaul a system is dependent on the quality and efficiency of the original unit, compared to new designs. Newer HVAC designs are often much more efficient than older technologies and can lead to significant potential for return-on-investment.

If the decision is made to replace the HVAC unit, care should be taken to properly size the unit to the current load requirement of the building, rather than matching the old design. This analysis should be left to a qualified HVAC consulting engineer, experienced contractor or trusted HVAC equipment supplier. Always involve two or three equipment suppliers to compare design strategies as well as pricing.

In addition to higher operating costs, equipment oversizing can also result in shortened equipment life and poor humidity control. All of these concerns have a direct bearing on total ownership cost, occupant comfort, employee productivity, and profitability of any business or organization. The typical reasons that HVAC systems are oversized include:

- Reliance on old nameplate data,
- Reliance on rule of thumb formulas are only for general estimating purposes,
- Lighting efficiency upgrades that have reduced internal heat generation within the building,
- Insulation upgrades that have reduced building envelope energy losses, and
- Use of full load nameplate data of heating load generators (computers, office equipment, etc.), even though the equipment rarely, if ever, operates at full load.

Oversized equipment can cost the owner both in the initial capital cost and the overall operating costs. More frequent cycling of the compressor because the unit is oversized can lead to premature equipment failure and higher electricity costs. The correspondingly larger fans and larger duct sizing, in addition to causing greater variation in occupant comfort, can also waste electricity because of the larger surface area and the probability of higher system air leakage. Furthermore, the coordination between the economizer and the compressor may be exacerbated.

See also:

- [Forging Ahead: Upgrading or Right-Sizing Your Boiler or Furnace](#)

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

Font Size ▾

nicor

Nicor's Energy News

My Account | News | Contact Us | About Us | Ask an Expert | Newsletters | Tests You Can Use | Preferences

Heat Reclaim from Refrigeration and Air Conditioning

Print | PDF | E-mail | Logout

Energy recovery in commercial refrigeration is an energy saving technology that has received more attention lately due to higher energy costs. Typical applications of heat recovery include:

- Air conditioning,
- Food storage refrigeration and coolers,
- Food storage freezers,
- Water coolers, and
- Ice makers.



You Might Also Be Interested In...

[Energy Efficiency Opportunities for Food Retailers](#)

Keep in mind that low-temperature refrigeration systems release more waste heat per ton of cooling than higher-temperature refrigeration systems. Also, less efficient units (HCFC-22) provide more heat for recovery than more efficient units (HCFC-134a). It is also possible that heat recovery systems may even increase the capacity of some systems (e.g., ice machines). For specific refrigeration and compression equipment within the supermarket and food business, a report from Oak Ridge National Lab entitled [Advanced Supermarket Refrigeration/Heat Recovery Systems](#) provides findings from Canada, Denmark, Sweden, the United Kingdom, and the United States.

Principles of Operation

There are two typical configurations for heat reclaim systems: series and parallel.

Superheat Energy (in series with condenser)

Most refrigeration heat reclaim devices are desuperheaters. Superheat refers to heat stored in the refrigerant vapor when it is heated above the temperature at which it evaporates for a given pressure. Acting as a desuperheater, a heat reclaim device cools the refrigerant only to the saturation point; no condensing takes place in the desuperheater. Condensing should only take place in the condenser. This is all controlled by a 3-way heat reclaim valve (Figure 1, below) with the reclaim heat exchanger in series with the normal condenser. Under typical conditions a desuperheater can remove about 10% to 30% of the total heat (BTUs per ton-hour of output) that would have been rejected by the condenser.

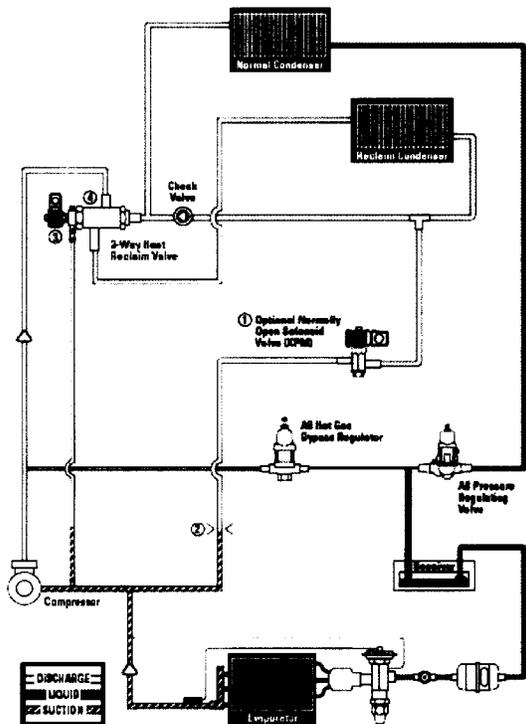


Figure 1: Series Condenser Piping Schematic (Courtesy of [Sporlan Division](#) of Parker Hannifin)

Heat of Condensation (parallel with condenser)

More heat can be extracted with the heat exchanger in parallel with the condenser, but at a lower temperature. However,

most refrigeration heat reclaim equipment manufacturers have intentionally avoided condensing problems with host equipment operation. Excessive subcooling (reduction of liquid refrigerant saturation point) in the condenser at low outdoor temperature is the concern. With excessive subcooling, problems can occur with low compressor head pressure, improper expansion device operation from inadequate pressure drop, and liquid slugging in the compressor. When condensed or even subcooled liquid refrigerant in an idle reclaim coil is mixed with fresh hot gas refrigerant, the reaction of the mixing can cause severe liquid hammer.

Example Payback Calculation

One heat recovery systems provider, Therma-Stor LLC, offers a printable [Return On Investment Calculation Form](#). It includes a Water Heating Chart that plots a Δ temperature rise ($^{\circ}\text{F}$) that can be achieved based on the compressor output (tons) and the water usage required (gallons per hour). The temperature rise represents the Btus of heat recovered from the superheat output of the compressor (assumed to be 230°F discharge temperature).

As an example, consider a restaurant that has three tons of refrigeration compressor output and an average hourly hot water usage of eighty gallons per hour. The Water Heating Chart indicates a potential temperature rise of 40°F for these two conditions. Since 1 Btu equals the energy to raise one pound of water one degree Fahrenheit, then raising eighty gallons per hour 40°F would recover 26,656 Btus/hr.

$$\text{Energy recovery} = 80 \text{ gallons per hour} \times 8.33 \text{ lbs/gal} \times 40^{\circ}\text{F} = 26,656 \text{ Btus/hr}$$

If the restaurant uses a natural gas water heater that is 60% thermally efficient, then it would save 0.44 therms per hour of natural gas per hour or \$0.44 per hour based on a fuel cost of \$1/therm.

$$\text{Energy Savings} = 26,656 \text{ Btus/hr} \times 1 \text{ therm/100,000 Btus} \div 0.60 = 0.44 \text{ therms/hr}$$

If the refrigeration compressor operates sixteen hours per day and 360 days per year, the annual savings would be \$2,534. Therma-Stor indicates a capital investment of \$4,000 for heat reclaim, resulting in a roughly 60% ROI. A 90% efficient electric hot water heater with an electric rate of \$0.085/kWh would result in a 100% ROI.

$$\text{Energy Savings} = 26,656 \text{ Btus/hr} \times 1 \text{ kWh/3,412 Btus} \div 0.90 = 8.7 \text{ kWh/hr}$$

$$\text{Annual Dollar Savings} = 8.7 \text{ kWh/hr} \times 16 \text{ hrs/day} \times 360 \text{ days} \times \$0.085/\text{kWh} = \$4,260$$

Limitations or Concerns

- Heat is available only when the refrigeration system is in operation. In many applications, however, heat storage capacity and the operating diversity of heat source equipment remove this concern.
- If installation is not done properly, the increased pressure drop in the refrigerant system can result in significant reduction of compressor life.

Supplier Offerings

[Therma-Stor LLC](#), provides a unique tank plate design that allows a free-flowing path to recover heat from hot refrigerant gases. A typical cooling system uses refrigerant to remove heat from the area to be cooled—the refrigerant absorbs heat and changes to a gas. The Therma-Stor system uses this energy to heat water by passing the refrigerant gas through a double-walled heat exchanger surrounding the water storage tank.

Other providers include [Mueller's Fre-Heater](#), [DeLaval's Century-Therm™](#), and National Refrigeration & Air Conditioning Canada Corp.'s [KeepRite Refrigeration](#).

[DeLaval Inc.](#)
11100 N. Congress Ave.
Kansas City, MO 64153
816-891-7700
usa.info@delaval.com

National Refrigeration & Air Conditioning Canada Corp.
[KeepRite Refrigeration](#)
985 Wheeler Way
Langhorne, PA. 19047
888-533-7871
pcatrino@k-rp.com

[Paul Mueller Company](#)
1600 W. Phelps
P.O. Box 828
Springfield, MO 65801-0828
(417) 831-3000

[Therma-Stor LLC](#)
4201 Lien Rd.
Madison, WI 53704
800-533-7533
sales@thermastor.com

Font Size ▾

nicor

Nicor's Energy News

My ENR ENERGY NEWS | Explore the eLibrary | Ask an Expert | Newsletters | Tools You Can Use | Preferences

Gas Humidifiers Improve Indoor Air Quality

Print | PDF | E-mail | Logout

Natural gas humidification is a reliable, cost-effective, and environmentally friendly choice for improving the indoor environment in many commercial, institutional, and industrial facilities.

Maintaining proper moisture levels in your facility is important to overall indoor air quality. Too little moisture can be just as harmful as too much. Studies by ASHRAE and other indoor air quality specialists have shown that the optimum relative humidity level for most indoor environments is between 40% and 60%. During the heating season, relative humidity in many buildings can fall to dangerously low levels. Low humidity levels can cause damage to carpet and furniture. Dry air also enables static electricity, which can adversely affect computers and other sensitive electronic equipment, as well as increase the risk of fire during certain industrial processes and in medical facilities that use volatile gases. Most importantly, low humidity levels can affect the health and comfort of building occupants. Exposure to dry air can increase susceptibility to colds and other viral infections, and aggravate asthma and other respiratory-related conditions.

Many facilities use existing or dedicated boilers to introduce steam into the air for humidification. However, this can be an expensive option for smaller facilities. Boilers also often require chemical water treatments that can be harmful to the indoor environment. Natural gas-fired humidifiers are a cost-effective alternative for many facilities. They add moisture to the air to increase occupant health and comfort, reduce static electricity, protect product materials, and enhance manufacturing processes. Gas humidifiers deliver consistent and reliable operation, need minimal maintenance, and don't require the use of chemicals necessary for the treatment of boiler water.



You Might Also Be Interested In...

[New Gas Pipeline Safety Regulations Bring on New Reporting Requirements for Pipeline Operators](#)

[Experience On Time Completion With Natural Gas Construction Heaters](#)

[Lower Your Natural Gas Use Now: Quick and Easy Energy Saving Tips](#)

How They Work

In natural gas humidifiers, water is converted to steam through gas burners. The air is moisturized when the steam is distributed throughout the surrounding area through the use of an air handling system or remote blower. The humidifier requires only a single-phase, 120-volt connection, and can use regular tap or treated water.

Applications

Gas-fired humidifiers are most commonly used in the following applications:

- Schools and churches
- Health care and nursing facilities
- Multi-family housing
- Libraries and museums
- Office buildings
- Food and dairy processing
- Printing facilities
- Laboratories and environmental test facilities
- Computer and semiconductor operations
- Textile and paper manufacturing
- Warehouses
- Wood and wood products manufacturing
- Photographic material processing

Success Story

For the Region of Waterloo (Ontario) Water Testing Laboratory, indoor air quality is important not just for worker comfort, but for maintaining sensitive testing equipment. In an effort to reduce unacceptably high utility and maintenance costs, the lab replaced their older electric humidification unit with a new gas-fired system. The result was a 64 percent savings in operational costs. "Installing the new gas-to-steam humidifier has significantly saved our energy costs and our maintenance issues," stated Brian Bechtel, energy manager for the Municipality of Waterloo. See the entire [case study](#).

Vendors

Suppliers of natural gas humidifiers include the following manufacturers:

[Armstrong International](#)
269-273-1415

Carel USA
717-664-0500

DriSteem Corporation
800-328-4447

Nortec Industries
315-425-1255

Semco Inc.
888-473-6264

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

Tomorrow's Options for More Efficient Windows

Print | PDF | E-mail | Logout

Today, several types of advanced glazing systems are available to help control heat loss or gain. The advanced glazings include double- and triple-pane windows with such coatings as low-emissive (low-e), spectrally-selective, heat-absorbing (tinted), or reflective; as well as gas-filled windows and windows incorporating combinations of these options.

State-of-the-art superinsulating windows, or superwindows, combine all the typical advanced features (low-e coatings, gas fill, good edge seals, insulated frames, and airtight construction) and then go one better: the low-e coating is applied not to the glass, but to one or two sheets of [Southwall Corp.'s Heat Mirror™](#), a transparent polyester film suspended between the glass panes. The result is windows with whole-unit ratings of up to R-6 (whole unit)—about twice as efficient as the same thickness of fiberglass.

Testing by Lawrence Berkeley National Laboratory's (LBNL) [Mobile Window Thermal Test \(MoWITT\) facility](#) has shown that, for cold, overcast days, the 24-hr net average heat

loss is smaller for the super-window than for an R-15 insulated wall. Insulated "superwindows" with three or more layers will virtually eliminate condensation on the interior surface of the glass—even under extreme cold weather conditions.



Heat Mirror™ comes in roughly twelve different "flavors" to block out varying amounts of solar radiation. The product designations loosely represent the amount of light transmitted through the coated film. Hence, Heat Mirror 77 will transmit more light than a Heat Mirror 22 product. For example, Heat Mirror 66 is used for hot climates and blocks more infrared, while Heat Mirror 88 is designed to allow more solar gain. Several manufacturers (such as [Gilkey Window](#), [Traco](#), [EFCO](#), and [Alpen](#)) use Heat Mirror™ to make their superwindows. Because of their extra cost, superwindows are most likely to be cost-effective in very cold climates. Superwindows generally don't earn their keep in hot climates, where you're better off buying less expensive low-e windows and using shading techniques.

As discussed, optical properties such as solar transmittance can be customized for specific climate zones. The heat from even a small amount of diffused winter sunlight will convert these super-windows into net suppliers of energy. This first generation of superwindows now available have a center-of-glass R-value of 8 or 9, but have an overall window R-value of only about 4 to 6, because of edge and frame losses.

Also under development are [chromogenic \(optical switching\) glazings](#) that will adapt to the frequent changes in the lighting and heating or cooling requirements of buildings. Electrochromic coatings (EC) are switchable thin-film coatings applied to glass or plastic that can change appearance reversibly from a clear tint (right-hand window column) to a dark Prussian Blue tint (left-hand window column) when a small DC voltage is applied. These "smart windows" will be separated into either passive or active glazing categories.

Passive glazings will be capable of varying their light transmission characteristics according to changes in sunlight (photochromic) and their heat transmittance characteristics according to ambient temperature swings (thermochromic). Active (electrochromic) windows will use a small electric current to alter their transmission properties.

Low-voltage power is required to switch EC windows and for some types of windows, a small applied voltage is needed to keep the EC in a constant state, irrespective of the level of tint. For instance, [SAGE Electrochromic's](#) commercially-available EC window requires constant power. The following are monitored power consumption levels (end use power at the wall outlet) for an array of (15) 35x18 inch windows tested in the field (18-inch distance between bus bars); power levels are likely to scale with window area:

- If no power is applied, the EC window "rests" at the clear state. The level of tint at the clear state will vary slightly between windows (e.g., $T_v=0.60-0.70$) and may be discernable when comparing two side-by-side windows. The EC window can be left unpowered during the night.
- If the EC window is in the process of being switched, peak power consumption is 0.26-0.32 W/ft²-glazing (5-6 W for a 42.5x60 inch EC window).
- If the EC is being held constant at any level of tint, steady-state power consumption is 0.07-0.15 W/ft²-glazing (1.2-2.6 W for a 42.5x60 inch window), assuming a 1-to-1 relationship between the EC window unit and its window controller. This includes power to the window, electronic circuitry for control, and parasitic losses due to the efficiency of the power supply.
- Average daily power consumption of the EC system (window+controller+power supply) during a 12-hour day was monitored to be the same as steady-state power levels in the bullet above. These consumption levels can be reduced to 25%-30% of current levels, if the control circuitry and power source are designed more efficiently.

Given its emerging technology status, the cost of EC windows remains around \$100/ft²-glazing. The cost is likely to decrease as volume of sales increases. Compared to conventional spectrally selective low-e windows (low-e coated windows with a high daylight transmittance and low solar heat gain coefficient) at \$10-\$15/ft²-glazing, the cost of EC windows cannot be justified at

You Might Also Be Interested In...

[Insulate Steam Distribution and Condensate Return Lines](#)

[ENERGY STAR: Reflective Roof Products](#)

[FLIR Systems](#)

this time by energy savings alone. Other potential capital and operating cost savings should be apples-to-apples comparison (e.g., possible reduction in HVAC capacity and maintenance requirements for blinds or shading systems with associated maintenance and replacement costs, and reduced need for devices (overhang, fins, frits, etc)).

If occupant comfort is translated into productivity dollars, automated EC windows may be cost justified at this price if properly designed and controlled. EC windows enable greater access to outdoor view and can increase interior daylight levels without increasing glare, leading to increased occupant comfort, performance, and perhaps productivity.

Cinema Gateway - Streaming Videos

[Buying Energy Efficient Windows](#) - DIY Network

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

Font Size ▾

nicor

Nicor's Energy News

My Nicor | My News | My Alerts | My Account | My Profile | My Preferences | My Recent Activity | My Recent News | My Recent Alerts | My Recent Account | My Recent Profile | My Recent Preferences | My Recent Activity | My Recent News | My Recent Alerts | My Recent Account | My Recent Profile | My Recent Preferences

How Do They Do That? Liquefied Natural Gas

Print | PDF | E-mail | Logout

Liquefied natural gas (LNG) is natural gas that is condensed into liquid and then imported into the United States, where it is regasified and injected into the U.S. gas supply. While LNG makes up only a small percentage of natural gas consumption today, many experts believe that changing supply and demand dynamics will make LNG a significant part of the natural gas market in the near future. According to the 2007 Annual Energy Outlook (U.S. Energy Information Administration), U.S. imports of LNG will more than triple between 2005 and 2010. LNG will continue to play a larger role in supplying the natural gas that heats homes and businesses and fuels equipment and appliances.

You Might Also Be Interested In...

[Comparing the National Fuel Gas Code and the International Fuel Gas Code](#)

[Co-Fired Applications Offer Operational and Environmental Benefits](#)

[Lower Operating Costs with Gas Catalytic Heating](#)

Where does LNG come from?

LNG is produced primarily in countries where large natural gas discoveries have been made. Practically all LNG exports come from the Pacific or Atlantic Basin or the Middle East. According to EIA data, the leading LNG exporters are: Indonesia, Algeria, Malaysia, Qatar and the United Arab Emirates. Generally, these locations are in remote areas with low demand for natural gas, making LNG a viable economic alternative.

How is natural gas liquefied?

Liquefied natural gas results when natural gas is cooled in large refrigeration systems to around -260°F and the gas is condensed into liquid form. The process shrinks the liquid to a volume of about six hundred times smaller than the gaseous state.

The LNG process takes place in large liquefaction plants. A number of liquefaction processes have been developed, with the differences mainly confined to the type of refrigeration cycles employed. Key equipment used in the liquefaction process includes compressors to circulate refrigerant, compressor drivers, and heat exchangers to cool and liquefy the natural gas. The gas is first pre-treated to remove impurities that would interfere with liquefaction or that are unwanted in the final product. Next, the gas is pre-cooled to separate heavier hydrocarbons. The remaining gas is made up mainly of methane and a small amount of hydrocarbons. The gas is further cryogenically cooled to -260°F, where it is completely liquefied. The condensed LNG is further sub-cooled in one or more stages to facilitate storage.

On a smaller scale, LNG may also be produced by liquefying gas taken from a pipeline, storing it, and then regasifying it for pipeline distribution to customers when demand is high, such as on cold winter days. These small regasification plants are often called "peakshaving plants." Alternatively, the LNG may be transported in special tanker trucks to small facilities where it is stored and regasified as needed. Such facilities are called "satellite plants." According to the Department of Energy, the United States has about 100 LNG satellite and peakshaving plants throughout the country.

How is it transported and stored?

LNG is transported from producing countries in specially designed double-hulled tankers to prevent leakage or rupture. The double hull provides increased structural safety, and the insulation allows the ships to act like thermos® bottles to keep the LNG cold. The LNG is stored in a special containment system within the inner hull at atmospheric pressure.

Large LNG tankers hold up to approximately 138,000 cubic meters of LNG in liquid form, or about 3.0 billion cubic feet. As of early 2005, there were 177 LNG tankers worldwide.



When an LNG tanker arrives at a receiving terminal, the LNG is transferred to storage tanks. These tanks are built either above or below ground. These are very robust structures. Their doubled-walled construction makes them essentially a "tank within a tank." The outer tank is typically constructed of carbon steel, while the inner tank is usually nine percent nickel steel. Between the two tanks is extremely efficient insulation to keep the cryogenic liquid sufficiently cold.

How is LNG turned back into gas?

LNG is converted back into a gaseous state at the import terminal. An LNG import terminal consists of docks for ships to bring LNG onshore, LNG storage tanks, vaporizers, and other equipment to turn LNG from a liquid back into natural gas. In the United States, there are currently five import terminals, although many more are in the planning stages. Upon reaching its destination, the LNG is stored as a liquid in specially designed tanks before being regasified.



To convert LNG back into its original gaseous state, it is fed into a regasification plant. Regasification is typically achieved through reheating the LNG with at least one heat exchanger. Two methods are commonly used. In one technique, a small amount of the LNG is burned in a submerged combustion vaporizer, which produces the heat needed to gasify the remaining LNG. The other common method involves utilizing open rack vaporizers that gasify the LNG with heat from ambient water, such as seawater or river water. The LNG will enter from the lower part of the vaporizer and exit as gas from the upper part. The water is collected and eventually returned

to its source.

How safe is LNG?

Protestors of proposed LNG projects in New England and California have expressed concern over the explosive potential of facilities and tankers and their potential use as a tool for terrorists. Opponents point to the devastating explosion at a liquefaction plant in Algeria that killed more than two-dozen people. However, as a liquid, LNG cannot burn or explode. In a gaseous state, LNG vapor can only burn if it exposed to a specific proportion of air. According to the [U.S. Department of Energy](#), the LNG industry has a proven safety record with forty years of shipping LNG over the Atlantic, Pacific, and Indian oceans, with no major incidences involving LNG ships or their cargo. The LNG facilities located on land are subject to stringent rules, regulations, and environmental standards. The Federal Energy Regulatory Commission (FERC) oversees safety measures for LNG facilities. For more information, see their [LNG Website](#).

Will LNG affect the performance of my gas-fired equipment and appliances?

Gas-fired equipment and appliances were designed for domestic natural gas and there is some concern that they are not compatible with the enhanced combustibility of imported LNG, which has higher quality and fewer impurities. Some industry experts claim that interchanging LNG for domestic gas could increase carbon monoxide, nitrogen oxide, and soot. It also could lead to premature failure of heat exchangers and temperature-sensitive components. Energy experts, such as the American Gas Association, believe that interchangeability will not be a major issue and that gas-fueled equipment will not have to be altered in any significant way to accommodate LNG. The Federal Energy Regulatory Commission and others are working on proposals to standardize LNG quality that account for foreign sources. In addition, a number of techniques currently exist for blending gas (such as with nitrogen) to lower the combustibility of LNG.

How would you rate the quality of this content? Select a star rating and click submit below

Comments or suggestions for additional content: (optional)

[Submit Rating / Comments](#)