Application Note:

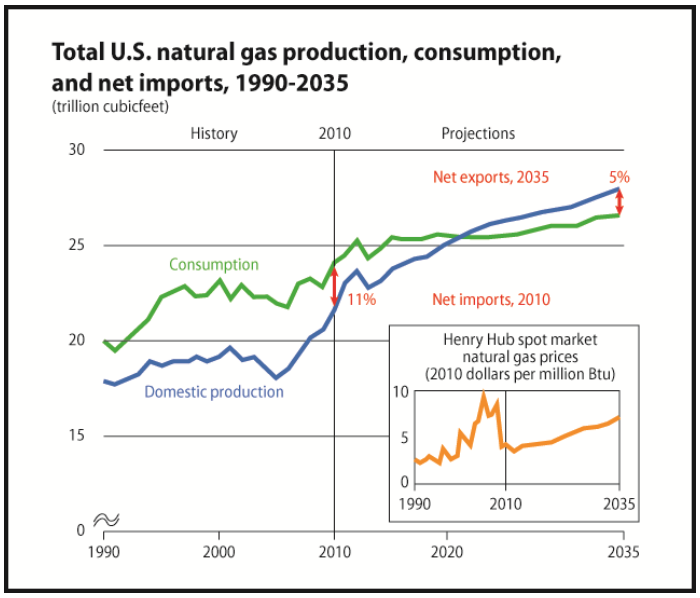
LNG / CNG Industry

General Monitors
An MSA Company

Interest in LNG and CNG has been rekindled and is expected to play an important role in the natural gas industry and energy markets over the next several years.

While there are many solutions that can help meet future energy needs, natural gas and its benefits are available now. The significant increase in the supply of natural gas, brought about by technical advancements in producing gas from shale deposits, has revolutionized the gas industry; opening up new sources of gas production around the world. Such increased production has escalated competitiveness, promoted job growth, and bolstered economies with lower, more stable natural gas prices.[1]

[1] *http://www.powerincooperation.com*



Liquefied Natural Gas

Liquefied natural gas (LNG) is natural gas that has been converted to liquid form for ease of storage or transport, and its use allows for the production and marketing of natural gas deposits that were previously economically unrecoverable. This technology is used for natural gas supply operations and domestic storage, and in consumption such as for vehicle fuel.

Compressed Natural Gas

Compressed natural gas (CNG) is natural gas under pressure which remains clear, odorless, and non-corrosive. CNG is a fossil fuel substitute for gasoline (petrol), diesel, or propane/LPG and is a more environmentally clean alternative to those fuels, and it is much safer in the event of a spill.

Application Profile: Portable LNG Gas Vaporizers – Drill Sites

Gas wells are typically drilled at remote sites. Often times it is a result of either the location of the gas, proximity to the public or a combination of both. Regardless, power is rarely available and prohibitively expensive to obtain. Drillers have found a way around this obstacle by employing portable vaporizers and temporary Liquefied Natural Gas (LNG) sources.

An LNG truck is sent to a potential drill site along with the portable vaporizer. After the connection is made, Compressed Natural Gas (CNG) is available to run a large generator that is capable of providing power to the entire drill site. Once the site is producing gas and is self-sustainable, the LNG and vaporizer are moved to the next site.

Safety devices are always employed when LNG is being used or stored due to its inherent explosive nature. LNG is stored at -260°F and as it is slowly warmed and vaporized it rapidly expands to 600 times its liquid volume. These harsh conditions are stressful on piping and valves which can result in potential leaks.

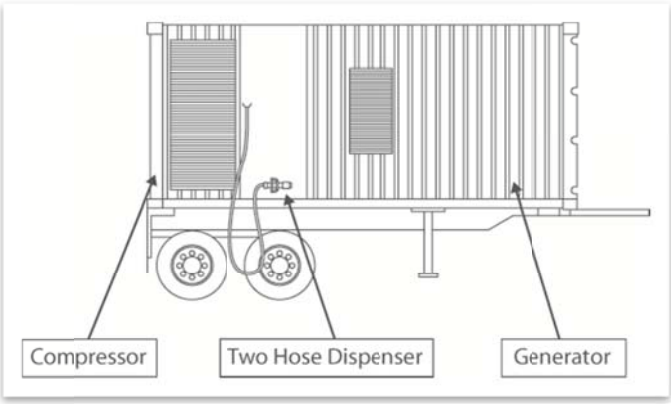
Application

The portable vaporizers are subsequently fitted with gas and flame detection to quickly shut down the flow of LNG in order to minimize the fuel source of a possible explosion or fire. General Monitors' combustible gas detectors and FL3100H UV/IR Flame Detectors are ideally suited for this application.

Application Profile:

Portable LNG Gas Vaporizers – Portable CNG/Permanent Filling Stations for Vehicles

Similar to the trailers made for Drill Sites, companies are also buying portable units for the purpose of supplying fuel to fleet vehicles. Many companies are retrofitting their delivery trucks to run on LNG as opposed to diesel. With the abundance of natural gas, coupled with the already high and rising price of diesel, it is economically viable to make the conversion. Since the infrastructure does not currently exist to support the re-fueling needs of their fleets, many companies are installing their own filling stations at strategic locations in their local areas.



Application

These stations are often enclosed to protect the equipment. Gas and flame detectors are installed inside the trailer. General Monitors' combustible gas detectors, FL3100H UV/IR Flame Detectors, Gassonic Ultrasonic Gas Leak Detectors, and IR5500 Open Path Infrared Detectors would provide optimal solutions for a safe work environment in enclosed spaces.

Application Profile:

LNG Vehicle Maintenance Facilities

LNG vehicles are driven thousands of miles every week and therefore require maintenance much more frequently than passenger cars. Companies typically have a large garage and a fleet of mechanics to reduce the downtime of their trucks. Being indoors, a leak from one of the pressurized CNG tanks would rapidly collect at the ceiling and could exceed the Lower Explosive Limit (LEL) in a short amount of time.

Application

As a result, the maintenance and storage facilities are typically outfitted with gas detection at the ceiling. Due to the size of the buildings, a combination of point and open path gas detectors are often employed. Together, General Monitors' combustible gas detectors and IR5500 Open Path Infrared Detectors would provide full detection coverage.

S4000CH and IR400 Combustible Gas Detectors

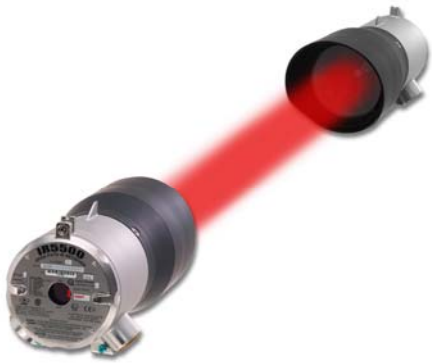
The S4000CH is designed to provide thorough, continuous monitoring of combustible gases using General Monitors' robust catalytic bead sensor. The IR400 infrared gas detector provides rapid speed of response and is easy to maintain.

FL3100H UV/IR Flame Detector

The FL3100H UV/IR Flame Detector is designed to detect fires and provide alarm outputs directly from the detector while maintaining false alarm immunity.

Gassonic Observer-i Ultrasonic Gas Leak Detector

Unlike conventional gas detectors that measure % LEL, ultrasonic gas leak detectors respond to the ultrasonic noise created by a pressurized gas leak. This ultrasonic noise provides a measurement of the leak rate and establishes warning and alarm thresholds. The Gassonic Observer-i Ultrasonic Gas Leak Detector is ideally suited for outdoor installations and indoor spaces with high ventilation rates.



IR5500 Open Path Combustible Gas Detector

The IR5500 Open Path Infrared Detector provides continuous monitoring of methane, propane, and other combustible gases. It is unique in that it monitors in both LEL-m and ppm-m ranges making it sensitive to both small and large leaks. It is able to cover large open areas, along a line of several potential leak sources such as a row of valves or pumps and also for perimeter monitoring of leaks.

GENERAL MONITORS
An MSA Company

www.GeneralMonitors.com

Lake Forest, California
26776 Simpatica Circle
Lake Forest, California 92630
Tel: +1-949-581-4464
Fax: +1-949-581-1151
Email: info@generalmonitors.com

Houston, Texas
9776 Whithorn Drive
Houston, Texas 77095
Tel: +1-281-855-6000
Fax: 1-281-855-3290
Email: gmhou@generalmonitors.com

Ireland
Ballybrit Business Park
Galway
Republic of Ireland
Tel: +353-91-751175
Fax: +353-91-751317
Email: info@gmil.ie

Singapore
Block5, #05-20/22/23, Amk Tech II
Ang Mo Kio Industrial Park 2A
Singapore 567760
Tel: +65-6748-3488
Fax: +65-6748-1911
Email: genmon@gmpacifica.com.sg

United Arab Emirates
P.O. Box 54910
Dubai
United Arab Emirates
Tel: +971-4-299 6741
Fax: +971-4-299 6843
Email: gmme@generalmonitors.ae

United Kingdom
Heather Close
Lyme Green Business Park
Macclesfield, Cheshire
United Kingdom, SK11 0LR
Tel: +44-1625-619583
Fax: +44-1625-619098
Email: info@generalmonitors.co.uk