

LNG: The Ideal Backup Fuel for Gas-Fired Power Plants



- 🔥 On-site LNG offsets unavailability of firm gas supply or expensive seasonal spot-market gas
- 🔥 LNG gives owners greater control over on-site backup fuel projects and fuel supply
- 🔥 LNG produces lower NOx and heavy metal emissions than other liquid fuels which may create goodwill in local communities and government
- 🔥 Oil based fuels typically have higher contaminant levels which cause plugging, fouling or erosion in equipment. LNG is clean burning, requiring no process adjustment to burn
- 🔥 LNG backup fuel supports standard plant operations with no use of distilled water injections

FUEL SUPPLY AT POWER PLANTS IS CRITICAL

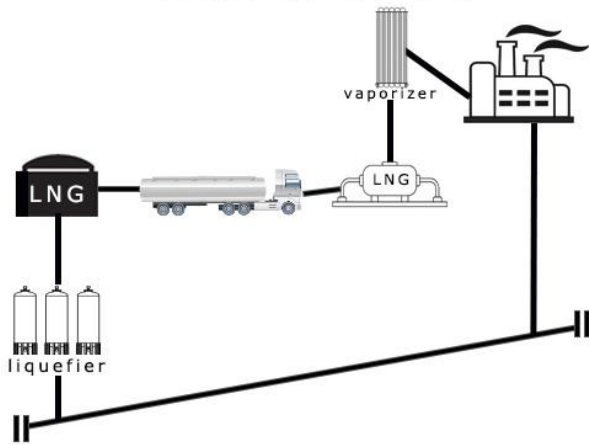
Gas-fired plants currently benefit from US gas market developments and affordable, abundant natural gas supply from the Marcellus and Utica Shales. Despite this, many power plants either do not have a backup fuel source or are reliant on expensive, dirty diesel fuel as a backup source when market conditions constrain gas capacity.

A no fuel event at a power plant may affect several hundred to several hundred thousand customers and would be very costly to facility owners. Depending upon the region, the penalties in the United States can range from \$2,500 to \$5,000 per Megawatt Hour; forfeiture of capacity payments for an entire year is the biggest penalty. A single no fuel event and ensuing penalties can wipe out a year of profitability.

Liquefied natural gas (LNG) storage is an economical and competitive option for backup fuel during constrained gas capacity conditions. By locating an LNG storage tank on-site or purchasing LNG as a service from a regional provider, generators will benefit from this affordable fuel as a backup source as well as a primary source of generation under the right conditions.

Contact bd@northstarind.com for a custom LNG Back-Up solution.

POINT OF USE
LNG Storage & Vaporization Facility

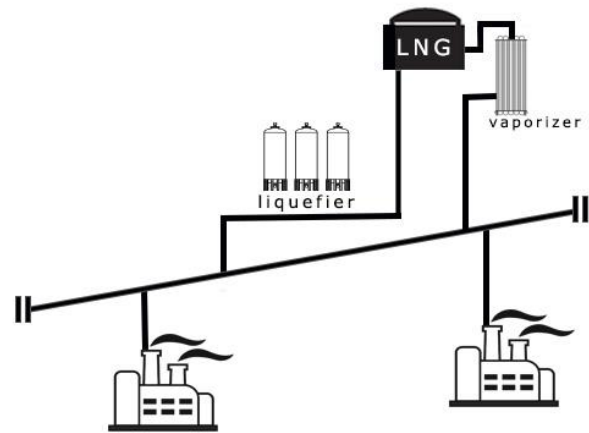


POINT OF USE

An LNG tank is built on site and LNG is supplied via over the road trucking to each plant individually. The LNG is stored on-site until it is needed and then it is vaporized into the plant process equipment instead of interstate pipeline capacity gas.

- Costs borne by single customer
- Storage sized as needed
- 5-10 days runtime
- Product trucked in
- Vaporization System
- No Liquefaction System

REGIONAL MODEL
LNG Storage, Liquefaction & Vaporization Facility



REGIONAL MODEL

The Generator “buys in” to a regional LNG asset, developed and owned by Northstar, for a guaranteed capacity. Generator orders gas delivered via interstate pipes. Gas is then liquefied by Northstar into a storage tank. Upon demand, Northstar injects vaporized LNG into the interstate pipeline up to the guaranteed capacity amount for consumption at the plant. Generators may become part-owner of facility.

- Costs shared among several generators
- Sized between 1BCF & 4BCF storage
- 5-10 days runtime
- Capability for trucking
- Remote liquefaction from pipeline
- On-site vaporization system
- Hourly dispatch capability
- Fast start-up