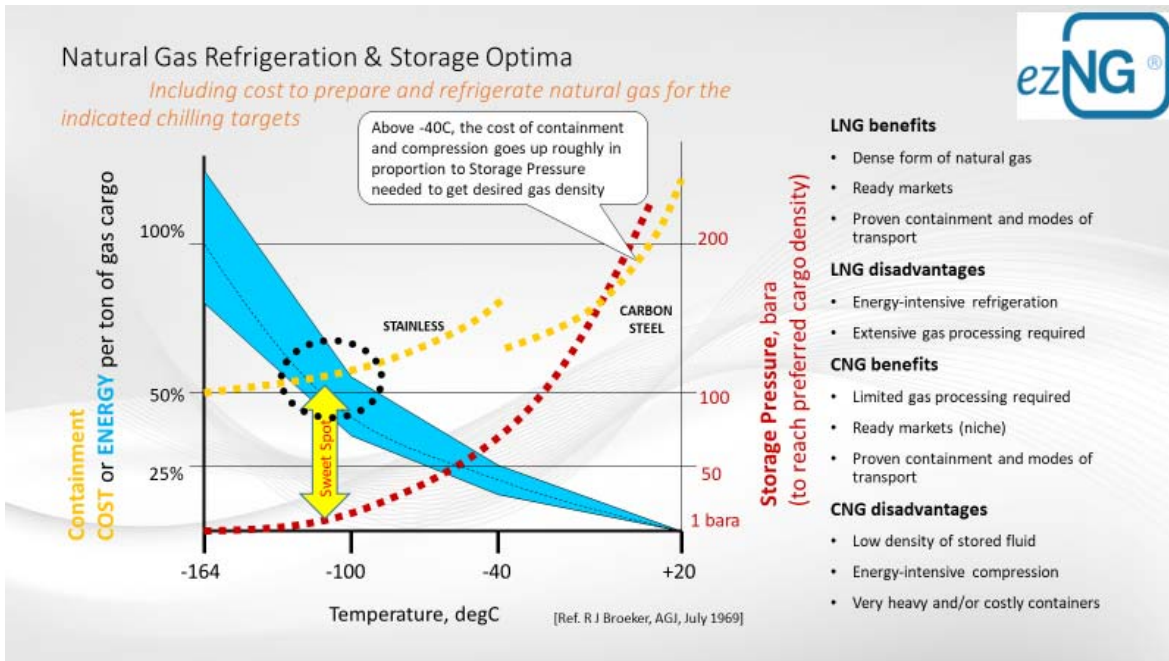


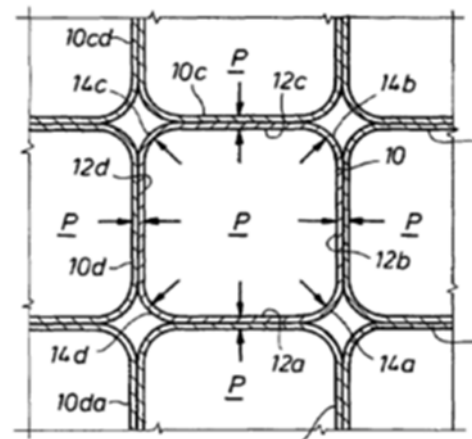
# Enhancing the Benefits and Overcoming the Limitations of LNG and CNG



**Optimal conditions for storage and bulk transport of natural gas were defined in the 1960's by H. C. Secord.** When the cost of containment is combined with the cargo density and cost (and/or energy) required for compression and refrigeration of the natural gas, true optima can be defined for containment in carbon and stainless steel tanks. The optimal conditions were explored and confirmed through the full scale test program of R. J. Broecker and the Columbia Gas System Service Corp. through the early 1970's.

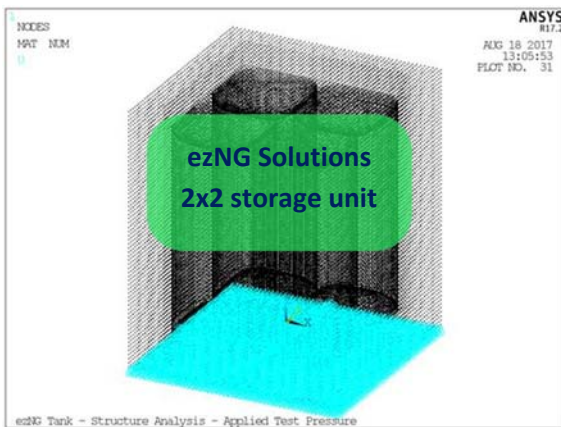
A massive R&D program by ExxonMobil in the 1990's and 2000's re-confirmed the advantages of liquefying natural gas at temperatures well above that of common LNG by applying modest containment pressures. **A "Pressurized LNG (PLNG)" facility is much simpler and less than half the size, requiring only about half as much energy as conventional LNG** while producing a fluid nearly as dense (ref. Bowen et al, GasTech 2005). The reduced, size, cost and complexity of a PLNG plant makes it possible to build a "warm LNG" plant on a big offshore barge.

Now, ezNG Solutions LLC offers storage units that provide containment for traditional LNG or "warm pressurized LNG" as well as patented gas handling technology for injecting natural gas fluids into and extracting them from storage. The ezNG® cold fluid containers can be used individually or in assemblies that efficiently fill storage volume spaces (e.g., in storage vaults or transportable intermodal containers). **ezNG® storage efficiency is an order of magnitude higher than that of CNG.**



**Patented ezNG® containment concept**  
(US 9,033,178 B, C. White)

ezNG® containers are easy to manufacture because the walls are smooth and relatively thin. This is important considering that fluid containment assemblies may be designed to survive pressures as high as 2 MPa (almost 300psig). Typically, large LNG tanks are not designed for pressures exceeding ~0.5 MPa.

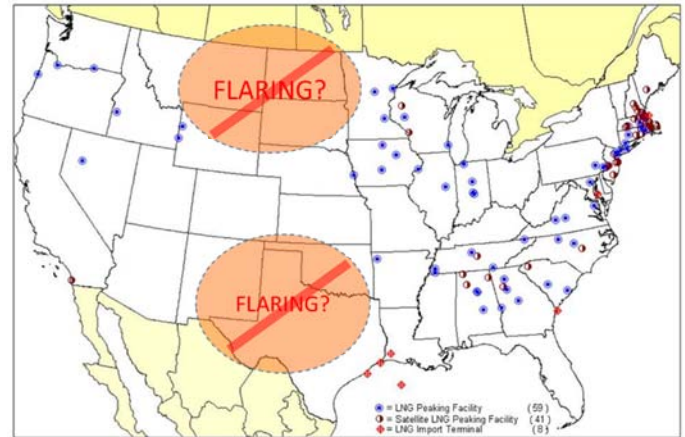


**Stainless steel or aluminium storage chambers designed to contain LNG or warm, pressurized LNG**

ezNG containers are designed for transport by truck from the fabrication facility to wherever bulk gas storage facilities are required. Small units can be designed and manufactured for any small-scale storage or fuel tank applications. Furthermore, the ezNG head configuration simplifies the design of and connection to foundations in storage vaults or holds on ships and barges.

ExxonMobil's *2017 Outlook for Energy: A View to 2040* predicts **250% growth in global LNG demand by 2040** with opportunities for

both CNG and LNG fuels market growth in North America. International agreements and a **growing desire to stop flaring of gas** in expanding “unconventional” oil fields is also driving a demand for efficient natural gas trucking and, thus, for the ezNG solutions.



Note: Satellite LNG facilities have no liquefaction facilities. All supplies are transported to the site via tanker truck. Source: Energy Information Administration, Office of Oil & Gas, Natural Gas Division Gas, Gas Transportation Information System, December 2008.

**The US needs distributed gas storage to complement sustainable energy initiatives and many regions are underserved by existing solutions – such as small-scale LNG and subterranean options.** ezNG easily enhances pipeline infrastructure in North America to meet localized needs for gas transport and storage.

ezNG cells can also store NH3, so let's work together to explore the many ways ezNG Solutions' technology can efficiently meet the clean energy storage needs of your company and your clients.

<b>For Technology Licensing information CONTACT us in Houston</b>	
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