In the past investment decisions on LNG Terminals and Bunker Stations were primarily taken on Capex issues. Increasingly, owners and users of LNG Terminals are taking Opex into consideration. Together with the ever increasing demands for safety and environment protection, vacuum insulated pipelines will gain more prominence within the LNG Industry.

**Why Vacuum Insulation?**
Vacuum insulation is the best technically achievable insulation method on earth. E.g. 200 Meters of vacuum insulated line has the same heat in-leak as 1 Meter uninsulated pipeline.

**How does it work?**
There are three ways of heat transfer that need to be blocked:
1) **Conduction** – an absolute minimum of heat bridges/fixed points between the process pipeline and the jacket line
2) **Convection** – a static vacuum of around $1 \times 10^{-5}$ mbar is created and maintained between the process pipeline and the jacket line
3) **Heat Radiation** – a highly reflective foil is wound with multiple layers of insulation (MLI) around the process pipeline.

This results in the highest insulation value technically achievable, providing the most efficient way to transfer LNG.

**Case Study: Lysekil LNG Receiving Terminal**
In Lysekil, Sweden, Skangass had a LNG Receiving Terminal built by Cryo AB. Demaco has supplied the almost two kilometre 12” Pipeline from the Jetty to the Storage Tank. Since the 12” line is being kept cold continuously the BOG would be a main cost driver during operation. Therefore it was chosen to use vacuum insulated pipelines for the transfer of the LNG.

**Vacuum Insulated Pipelines minimize the Boil Off Gas (BOG) rate of the LNG installation subsequently lowering your Total Cost of Ownership (TCO)!**

**Conclusions**
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