SATNOW

The SATNOW system allows refueling cold LNG (3bar) and saturated LNG (8bar) at the dispenser without having two LNG storage tanks with two different temperatures. Only one storage tank is necessary to operate a station with cold and saturate LNG. If the LNG in the storage becomes saturated after a certain time then the Flow Management Skid will bypass the SATNOW to refuel directly from the LNG storage tank.

Principle

The SATNOW system converts cold liquefied natural gas (LNG) at -162°C to saturated LNG at a higher temperature (-125°C) during the fuelling (on the fly). This step is necessary because the truck technology, which works with saturated LNG is not able to consume cold LNG. The Satnow system allows storing cold LNG in the storage tank and in this way it decreases the time before the tank will vent natural gas to the atmosphere (LNG losses).

Advantages of this unique system

- ☆ Reduced the risk of venting natural gas to the atmosphere and loosing LNG
- ☆ Storage of sub cooled LNG allowing for better storage management
- ☆ Ability to fuel both cold and saturated vehicles with a single cold LNG source
- ☆ No need for heating power
- ☆ No station down-time during offloading (station must not be switch-off for "bulk saturation")
- ☆ 24/7 station availability due to the on demand saturation capability
- ☆ No modification to standard storage tank

Scope of supply

The SATNOW system is consisting of the following equipment mounted on the Flow Management Skid:

- ✓ 1 heat exchanger unit for a 170 or 340 l/min flow (45 or 90 GPM)
- ✓ 1 ambient air vaporizer
- ✓ Internal piping
- ✓ Connection flanges
- ✓ automatic on/off valves
- ✓ Piping insulation of 100 mm radius
- ✓ Frame for the system integration
- ✓ Temperature probes for monitoring

Process description

The saturation system “Satnow” is used to increase the temperature of the LNG to the required temperature. The control of the temperature is based on the pressure management in the system.

The system is made with two lines:

- The refueling line (blue) where the “cold LNG” from the storage tank will be heated up to the temperature of the “saturated LNG” (-126°C) by adding heat into the line.
- The condensing line (violet) where the some gas will be condensed to transmit heat to the refueling line. The condensing temperature of the saturated LNG exactly corresponds to the gas pressure in the system. In this line, the vaporizer transforms the condensed LNG (from the condenser) into gas, which is redirected to the condenser and creates a condensing loop. The pressure is adjusted by the system.