

How Does a LNG Satellite Plant Work?



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- Specifications LNG
- Complete Chain: Production to End Customer
- Design by Prima LNG

2. The LNG Satellite Plant

- General Overview
- All the Different Parts of an LNG Satellite Plant
- Telemetry
- LNG Delivery

3. Safety Measures

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2. The LNG Satellite Plant

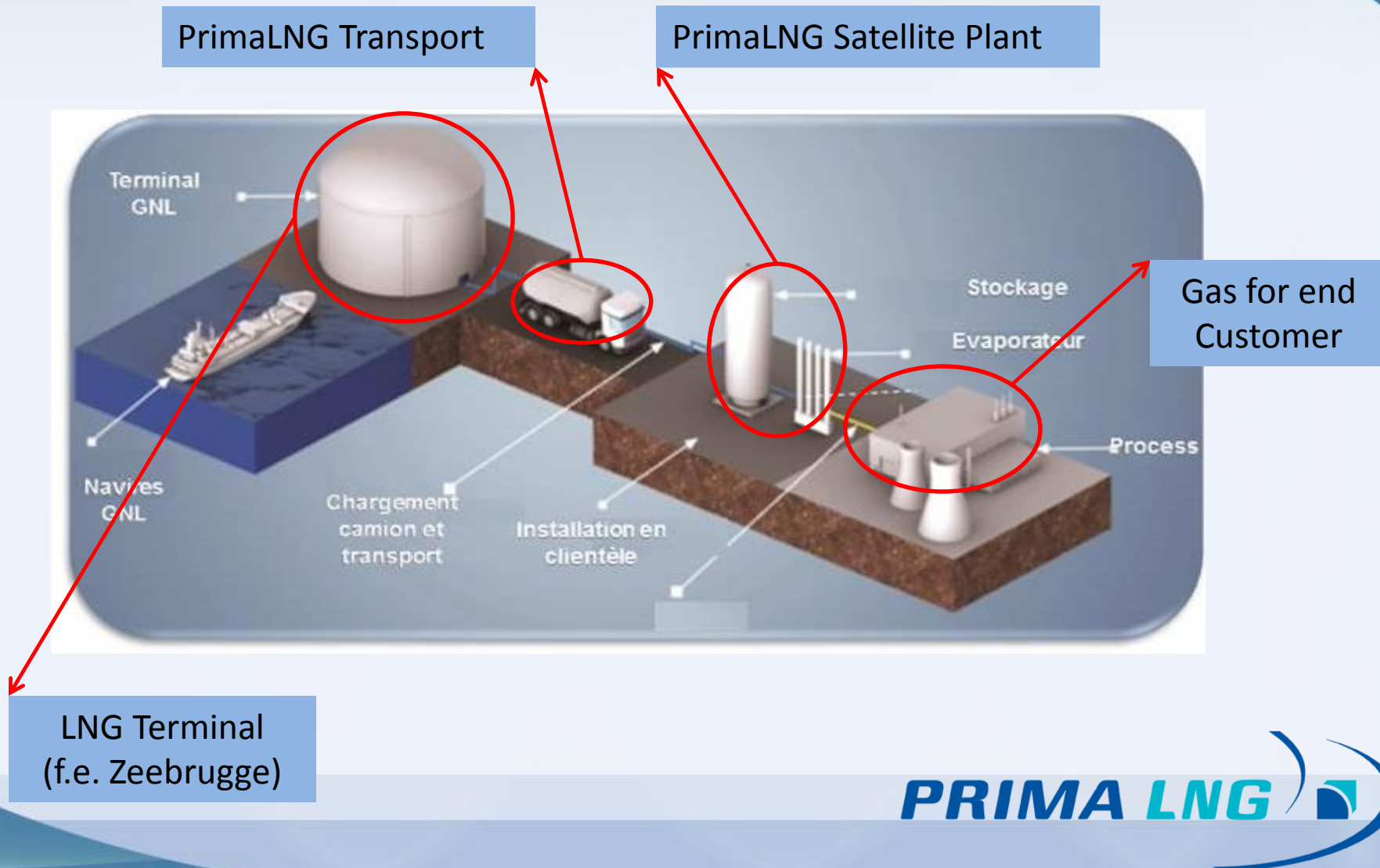
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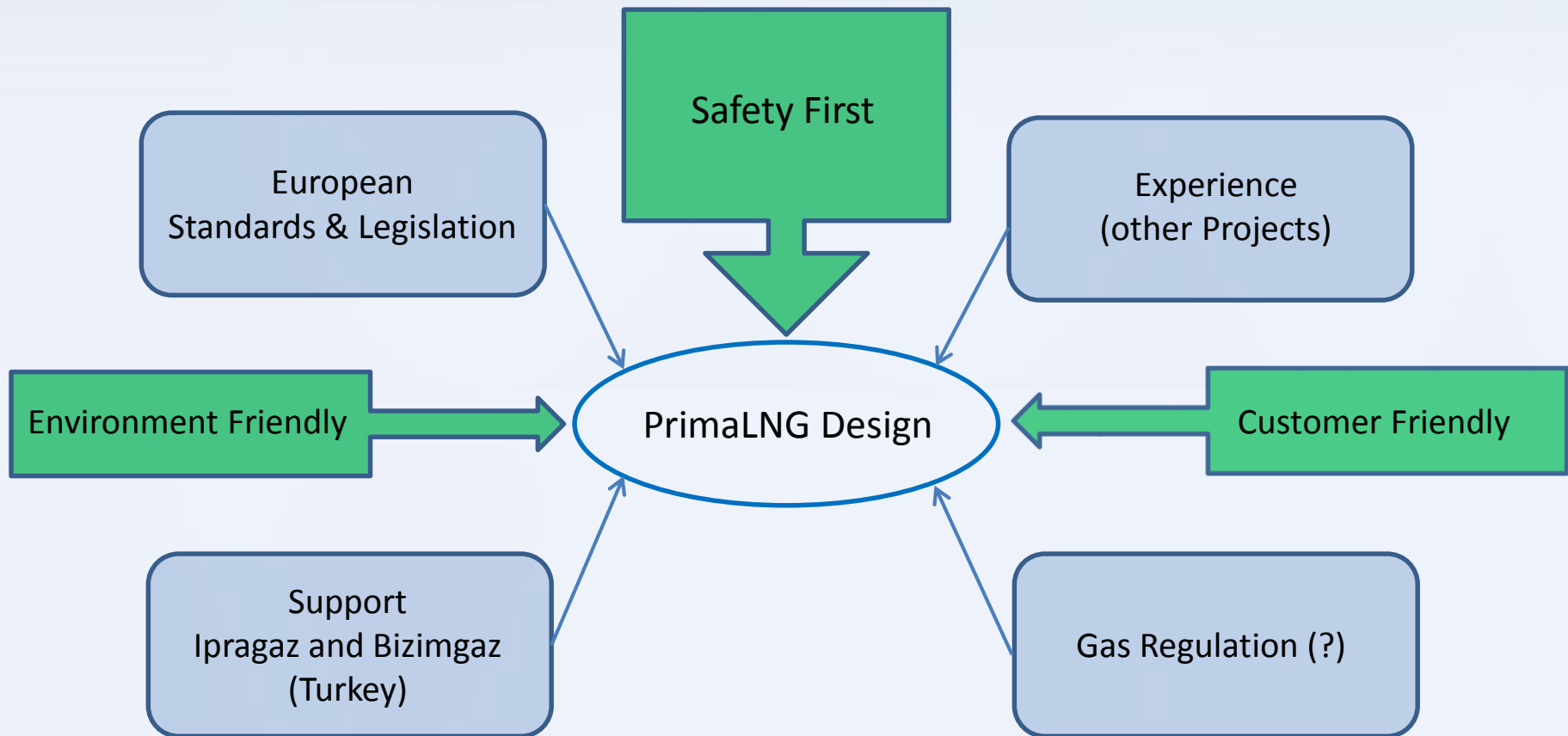
1. Introduction: LNG Specifications

	LPG	LNG
Boiling Point [°C]	-42	-162
Liquid Density [kg/liter]	0,508	0,46
Gas Density [kg/m³]	1,86	0,71
Flammable Temperature [°C]	480	580
Liquid/Gas Expansion Ratio	272	600
Color	Colorless	Colorless
Odor	Odorless	Odorless
Weight - Air	Heavier than Air	Lighter than Air

1. Introduction: Complete LNG Chain



1. Introduction: Design by Prima LNG



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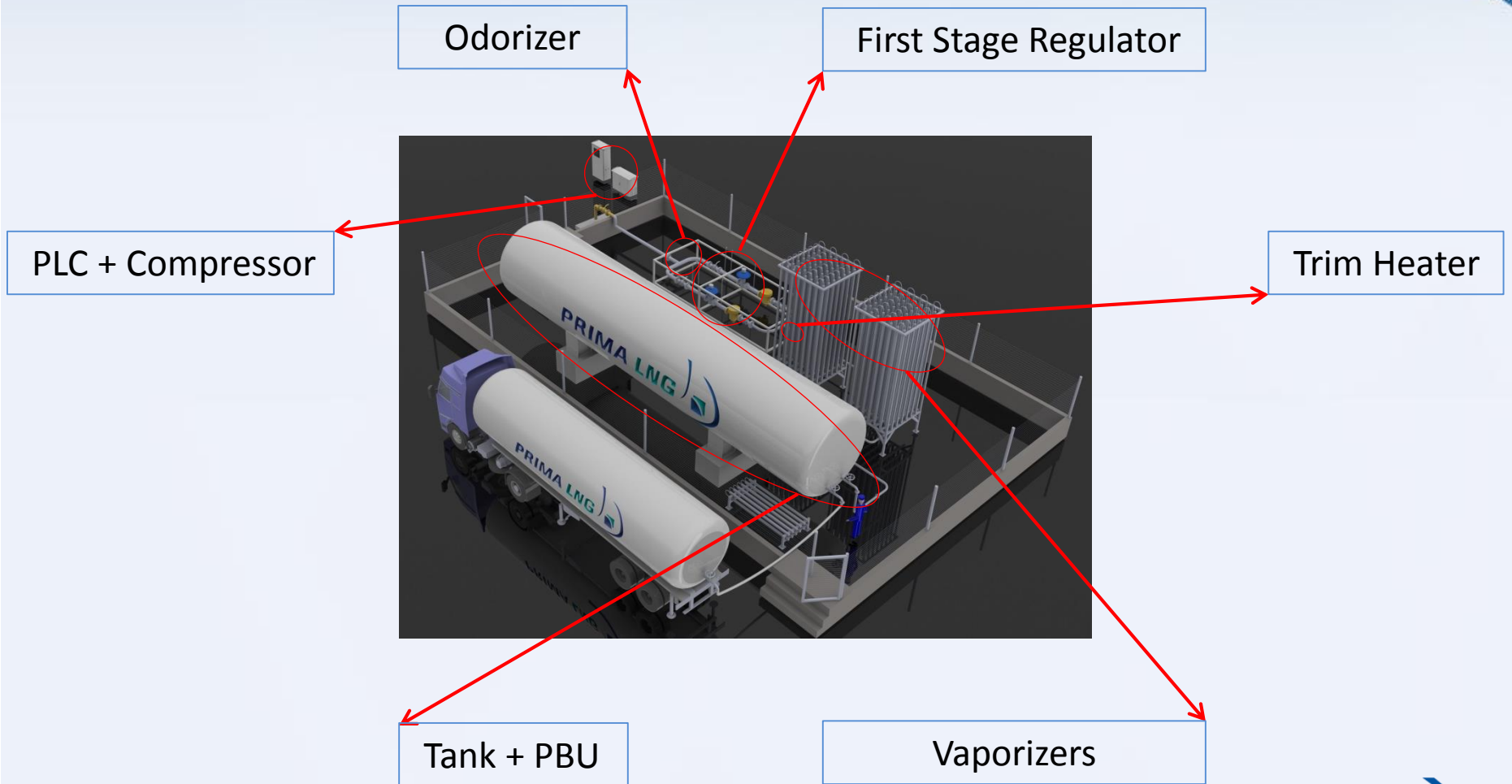
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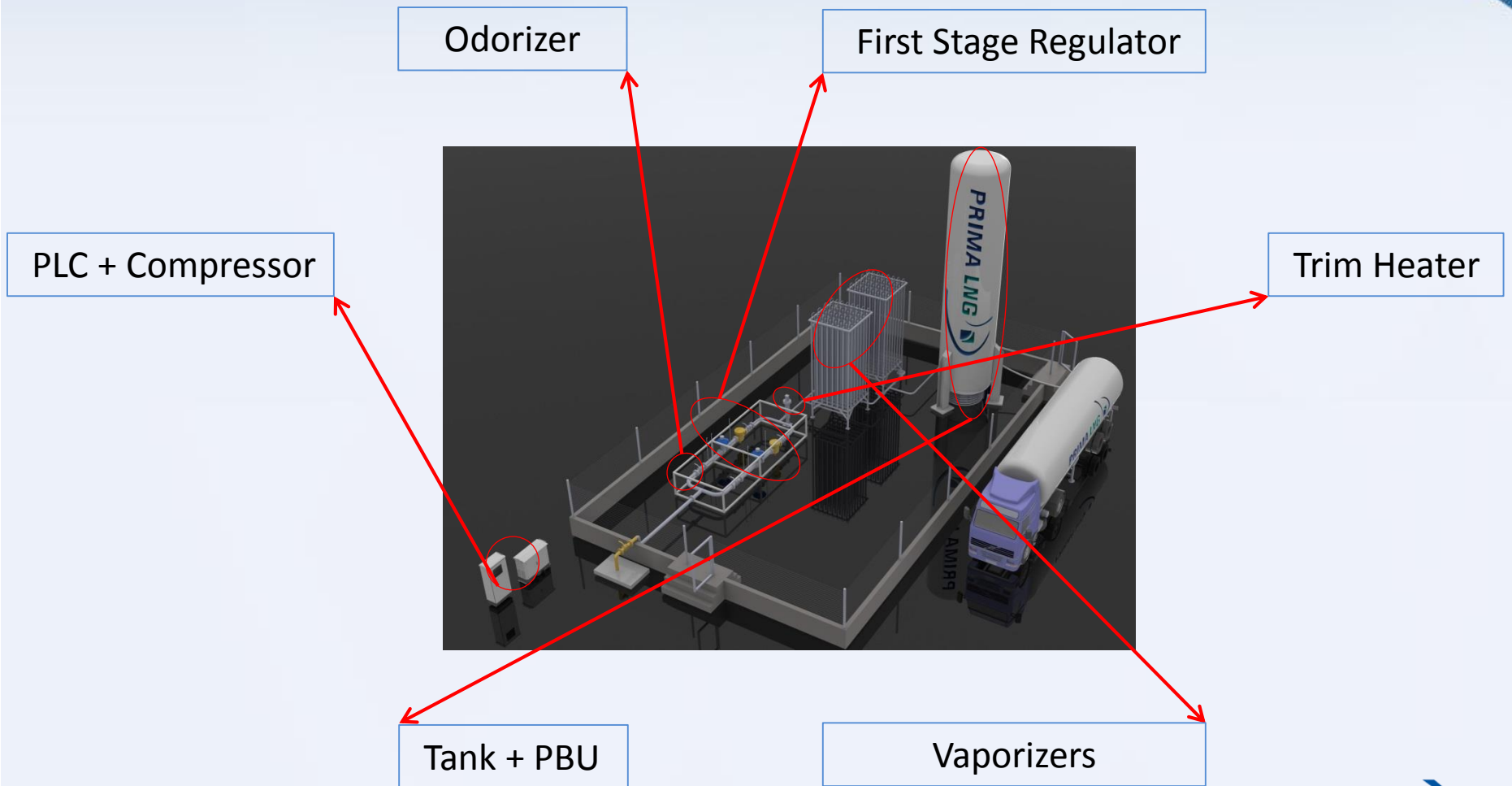
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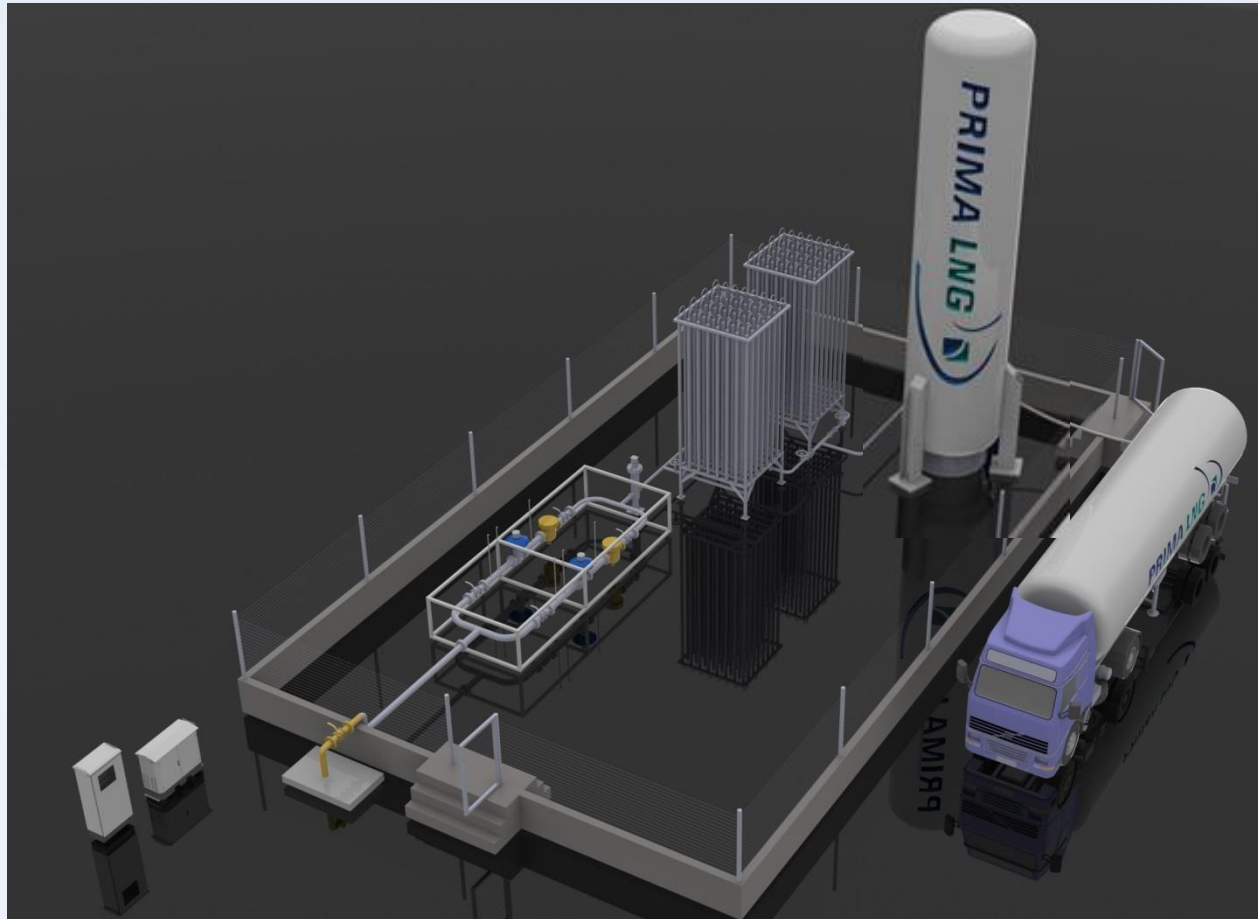
2. The LNG Satellite Plant: General Overview



2. The LNG Satellite Plant: General Overview



2. The LNG Satellite Plant: Tank



2. The LNG Satellite Plant: Tank + PBU

- Inner Tank / Outer Tank
- Insulation: Perlite + Vacuum or Superinsulation + Vacuum
- Design Pressure: 11 → 17 bar
- Range of Tanks: 60m³/90m³/110m³ - Vertical or Horizontal



2. The LNG Satellite Plant: Tank + PBU



Safety Valves

Pressure Build up Unit

Gas Detector

Level Gauge

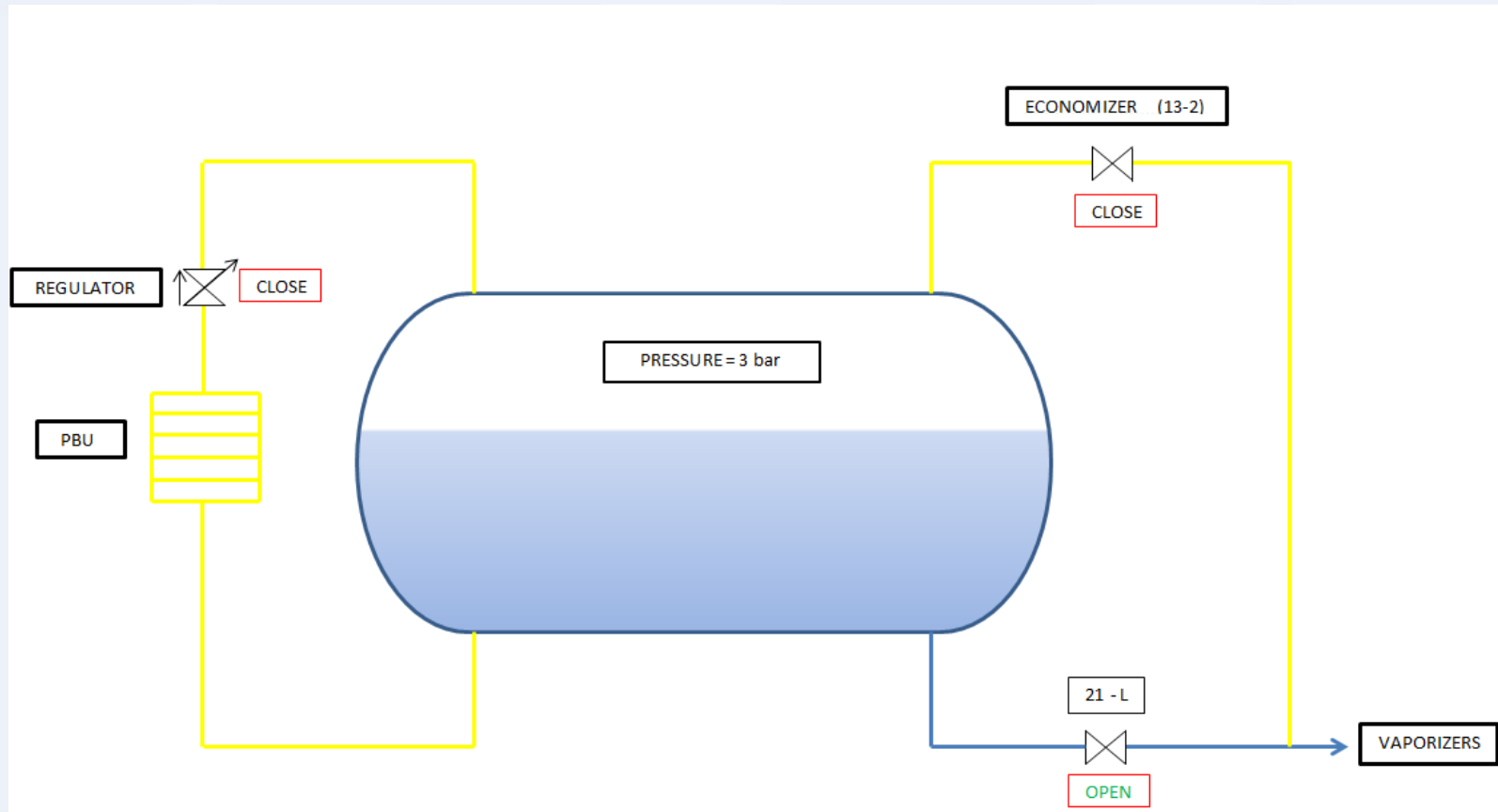
Pipe to Vaporizers

Filling Connection

Economizer

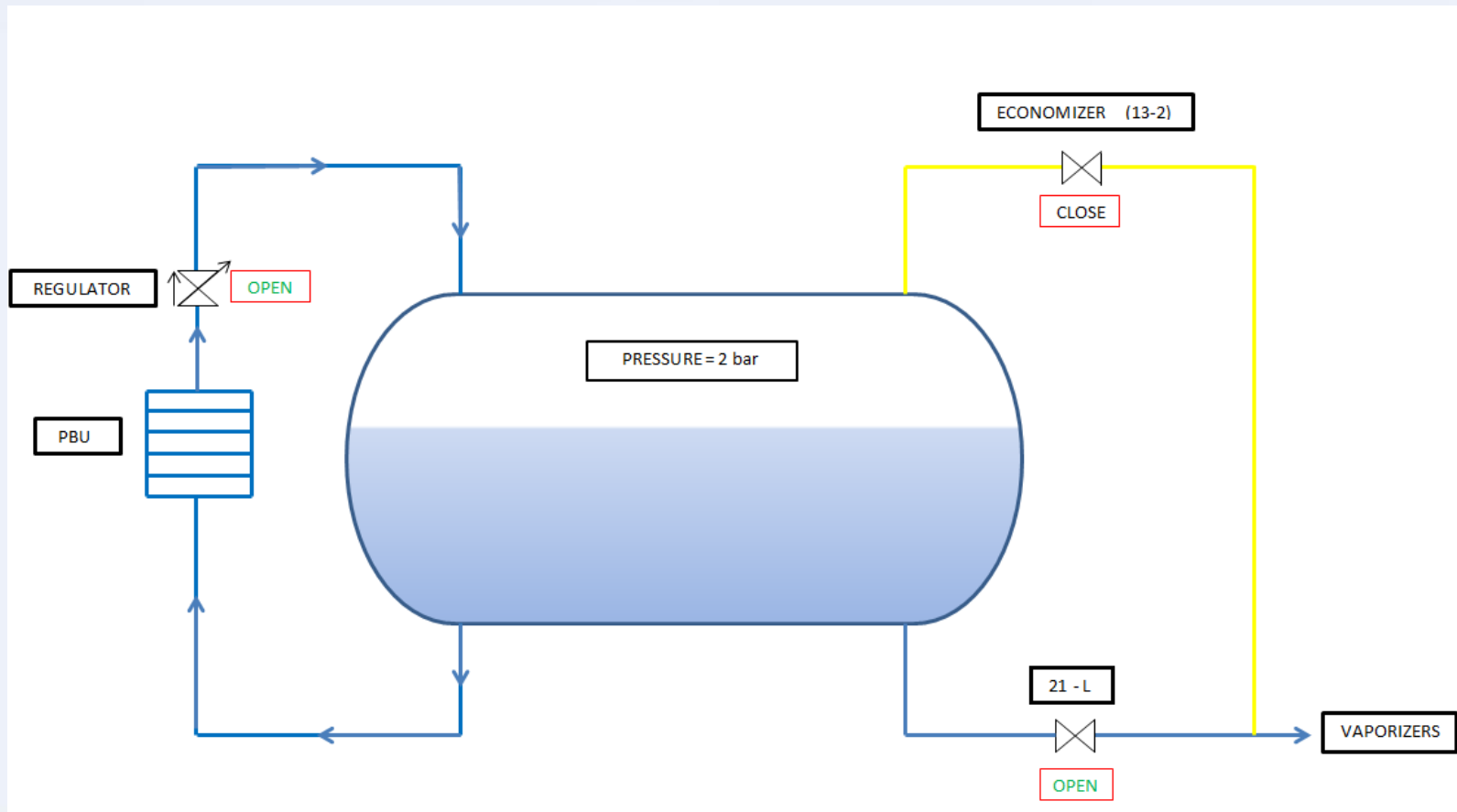
2. The LNG Satellite Plant: Pressure Management

- Normal Pressure Inside the Tank:



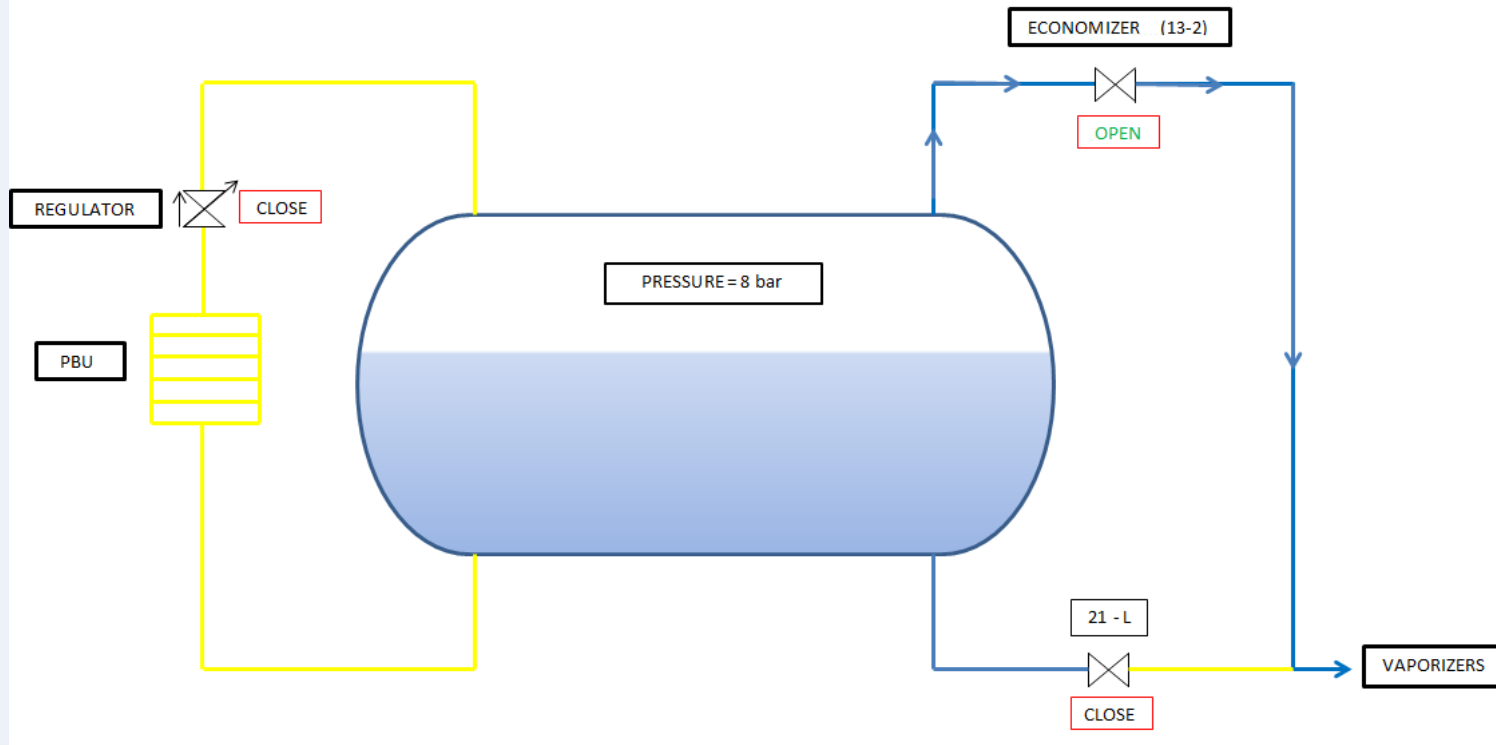
2. The LNG Satellite Plant: Pressure Management

- Low Pressure Inside the Tank:



2. The LNG Satellite Plant: Pressure Management

- High Pressure Inside the Tank:

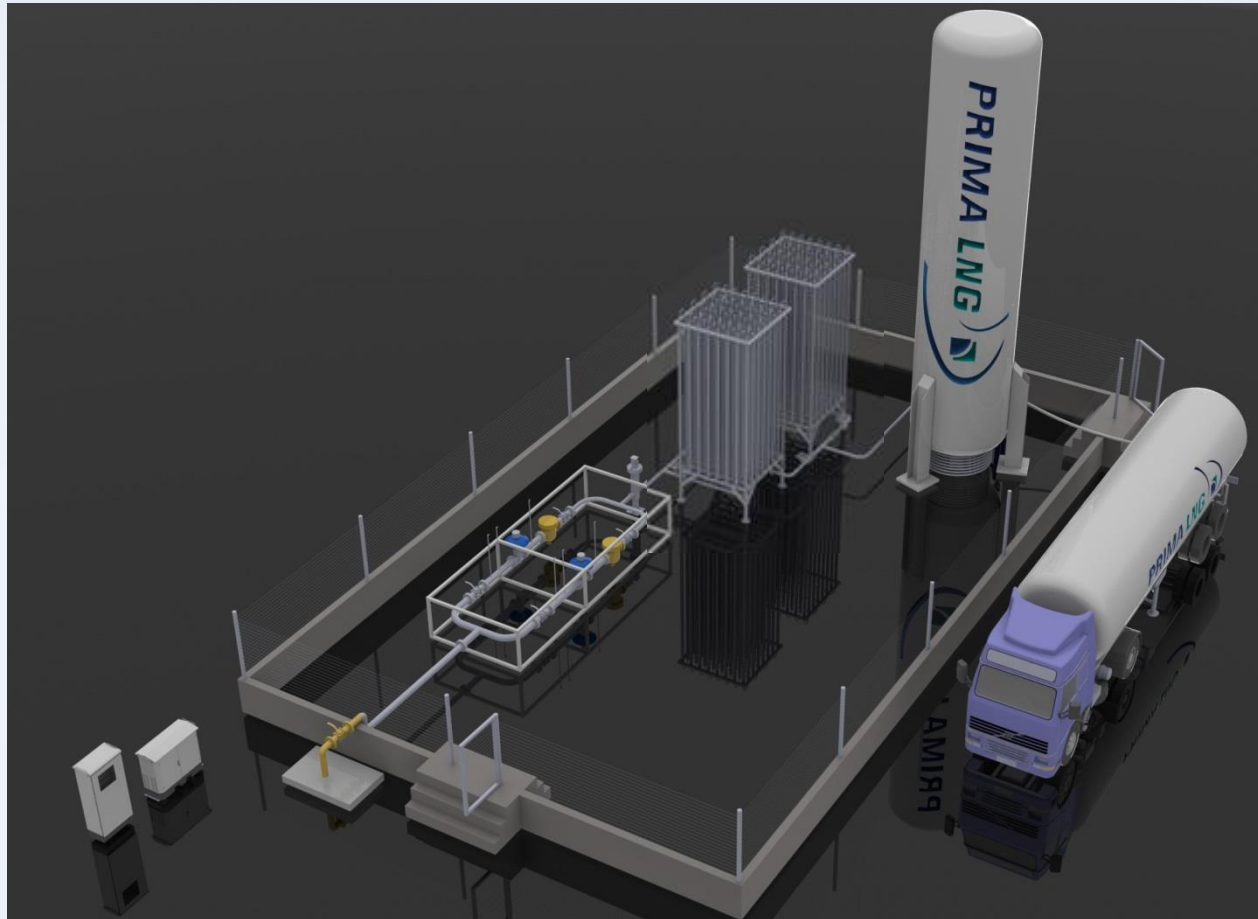


2. The LNG Satellite Plant: Tank + PBU

- Examples of a horizontal and a vertical Tank:

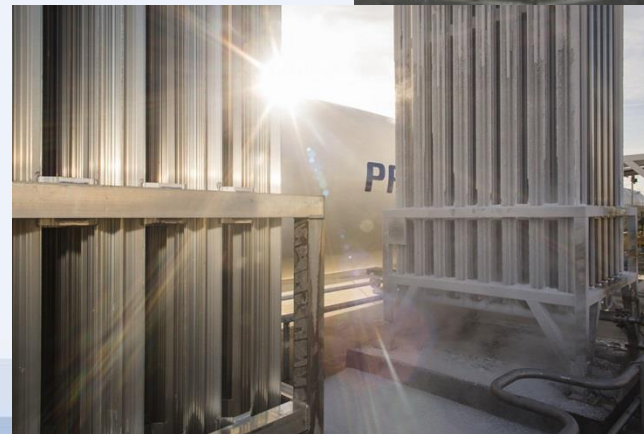


2. The LNG Satellite Plant: Vaporizers

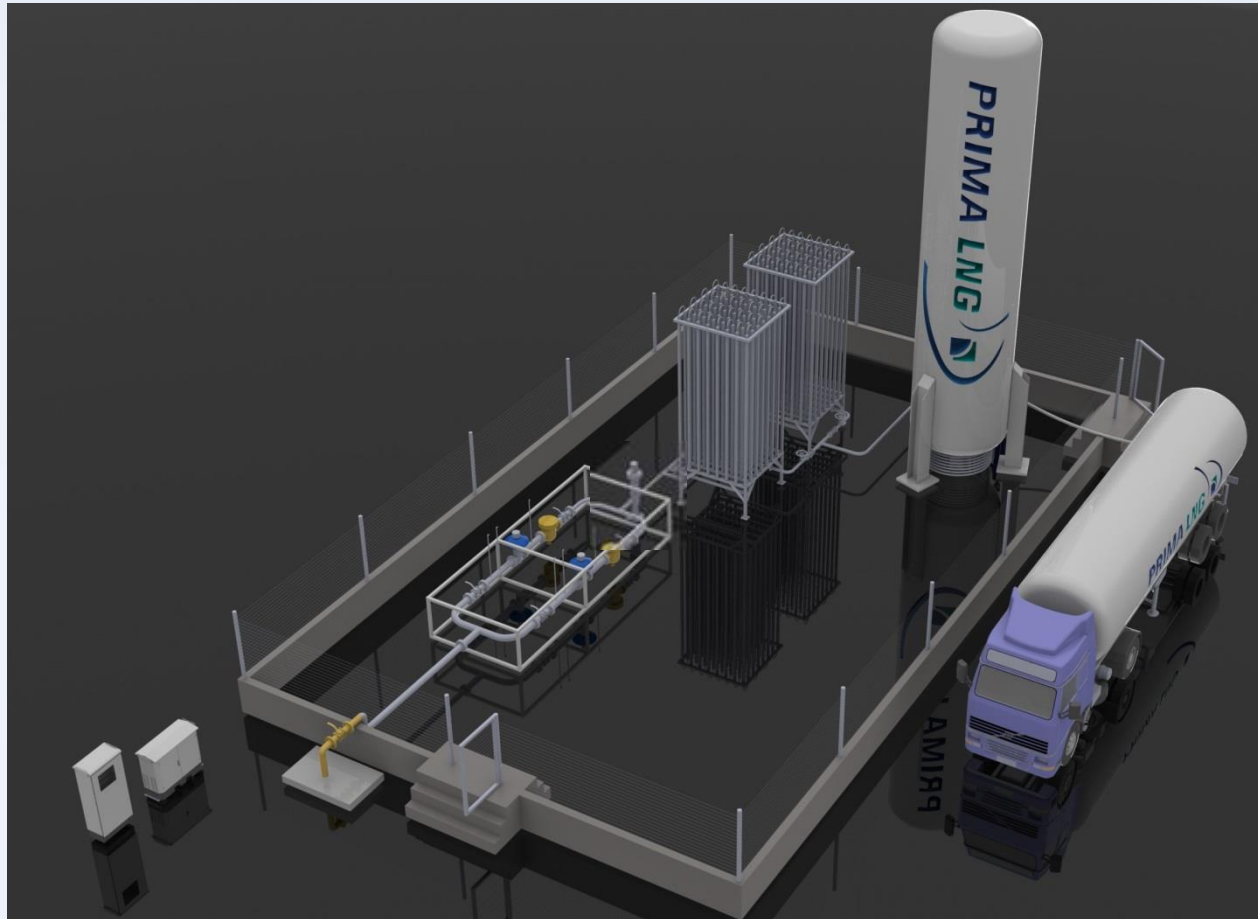


2. The LNG Satellite Plant: Vaporizers

- Vaporizers: Liquid $\rightarrow$ Gas
- Surface Contact
- Two Vaporizers (Parallel) – Automatic Switch
- Calculation of the Dimensions:
 - Flow
 - Climate
 - (Pressure)



2. The LNG Satellite Plant: Trim Heater

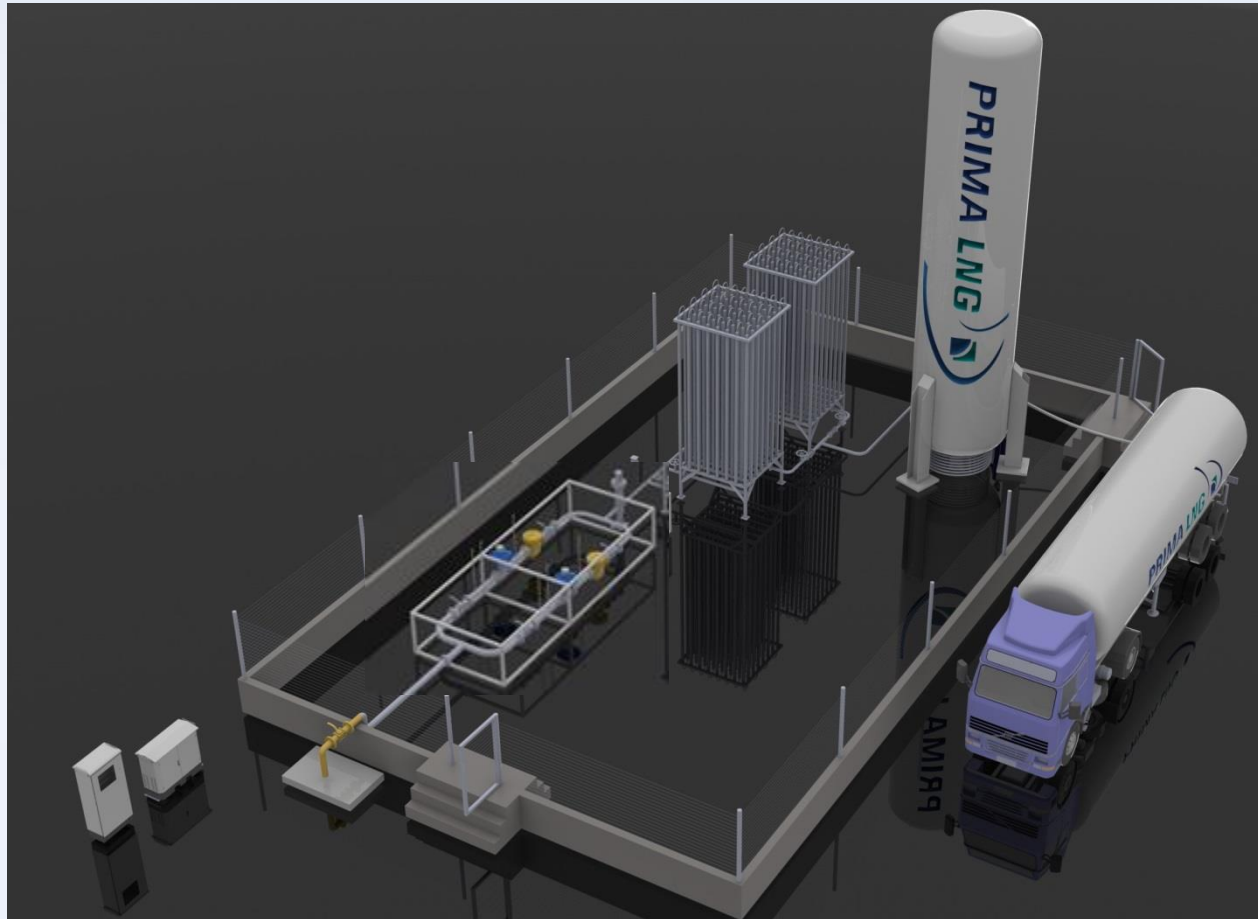


2. The LNG Satellite Plant: Trim Heater

- Trim Heater: Resistance
- Temperature Transmitters before and after (TT3 and TT4)
- Flow Switch
- Dimensions depend on the flow + Climate
- Target: Deliver Gas with a Temperature $> 0^{\circ}\text{C}$



2. The LNG Satellite Plant: First Stage Regulator



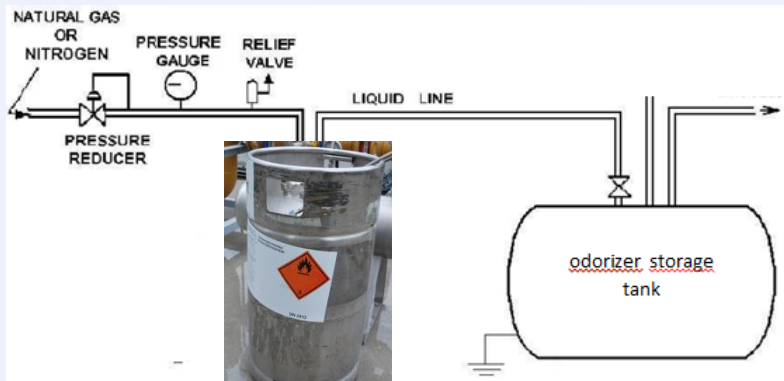
2. The LNG Satellite Plant: First Stage Regulator

- Device that regulates the flow:
 - Not continuous
 - Transfer into correct pressure for the customer (from 0,3 to 6 bar)
- Diaphragm + Spring + Slam Shut
- Double Line (recommended by PrimaLNG)

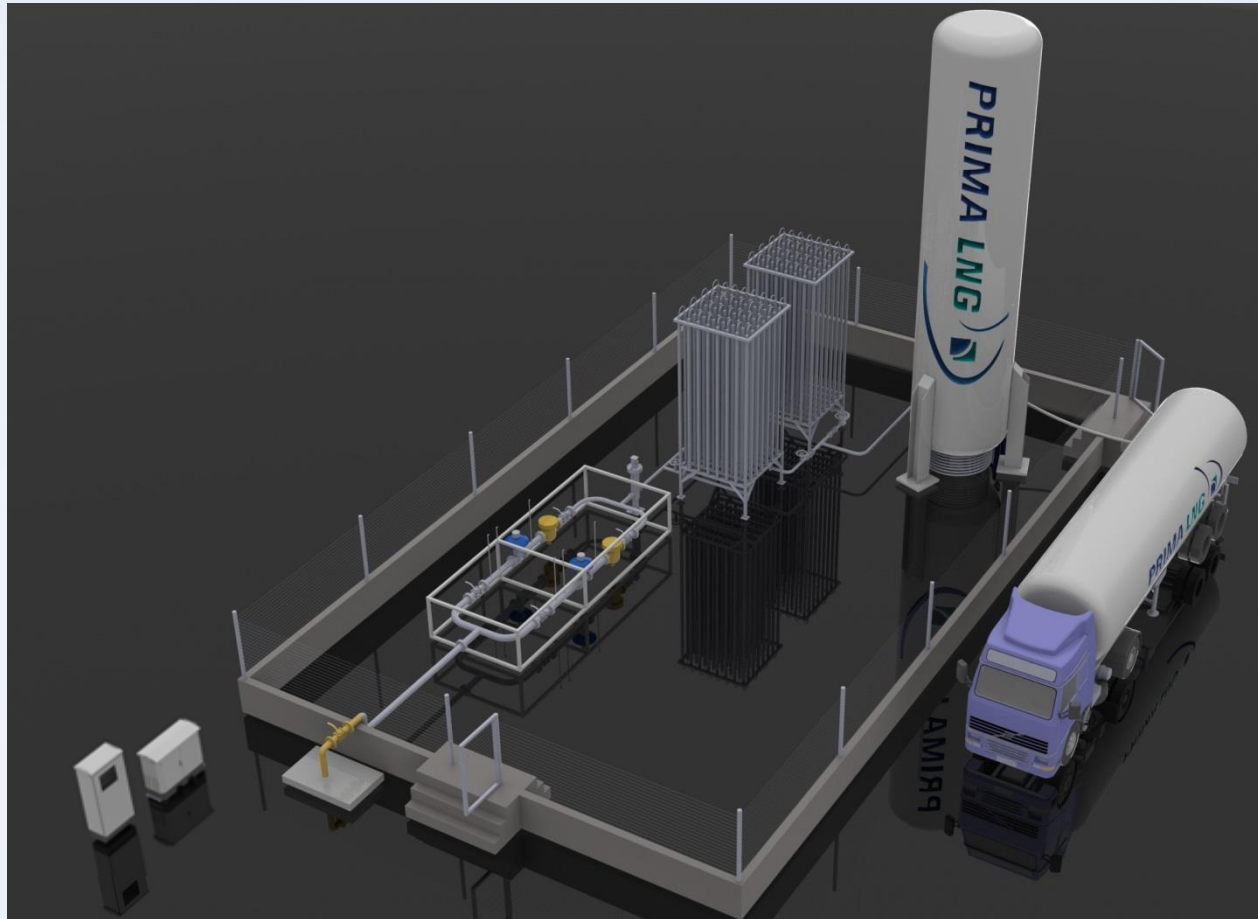


2. The LNG Satellite Plant: Odorizer

- Obligatory by Authorities
- THT (TetraHydroThiophene)
- How does it work?



2. The LNG Satellite Plant: PLC + Compressor

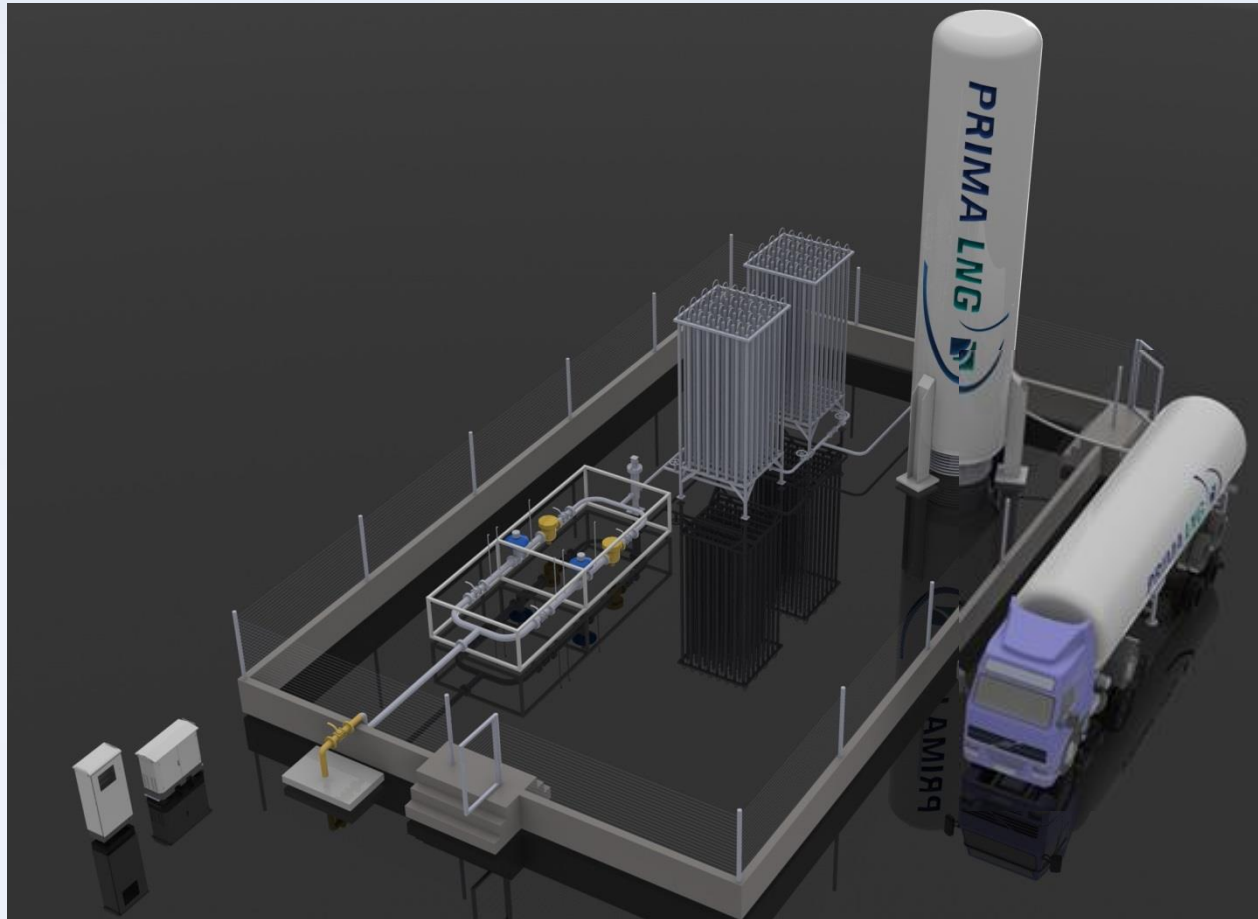


2. The LNG Satellite Plant: PLC (+ Compressor)

- Electronic Brain of the Installation
- Parameters
- Control of all the automatic valves
- Registering values from TT, PT, Gas Detectors, Level Gauge



2. The LNG Satellite Plant: LNG Delivery



2. The LNG Satellite Plant: LNG Delivery

- Trained Truck Drivers
- Safety Zone
- Connection with Flexible Hose
- Bottom Filling/Top Filling



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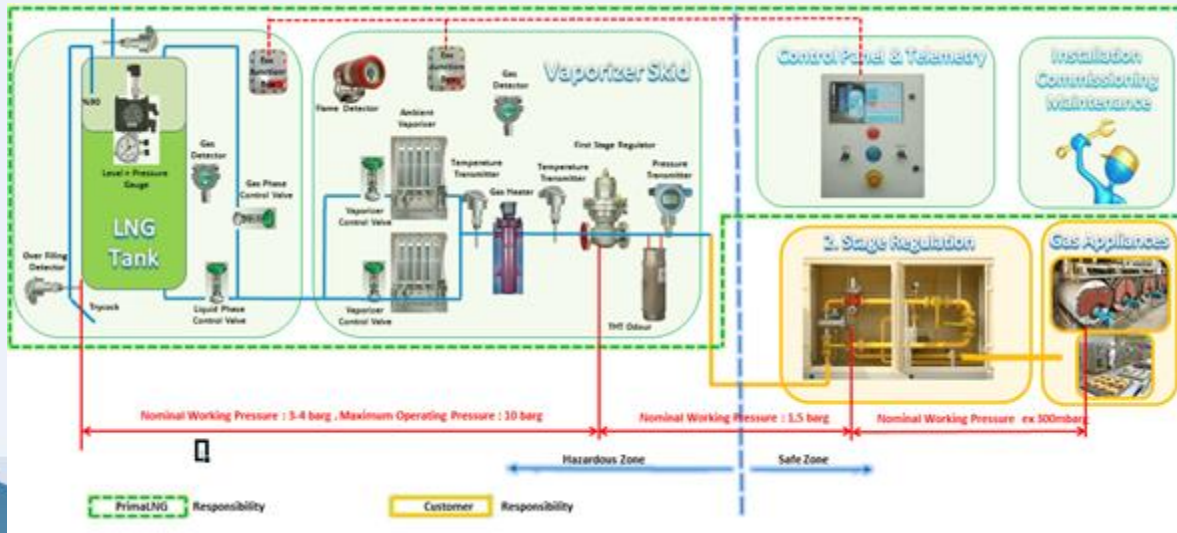
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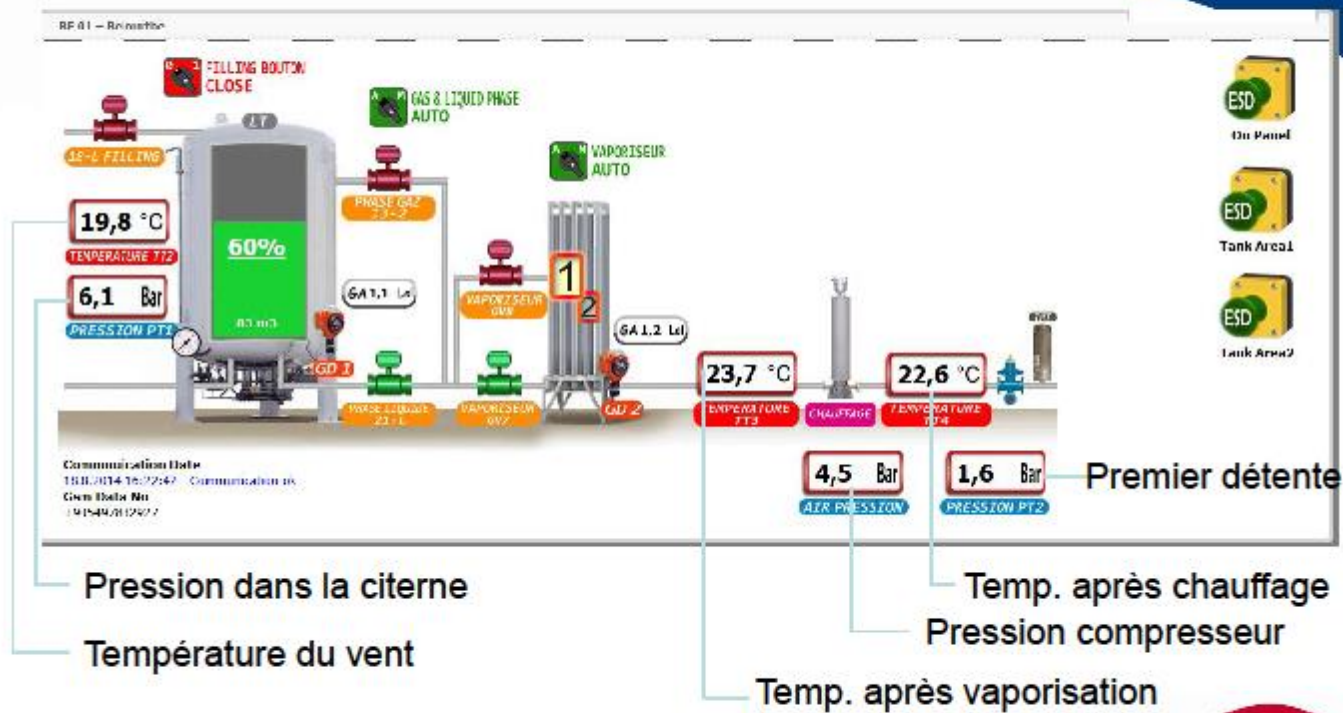
3. Safety Measures

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- 2 x Gas Detectors
- Temperature Transmitters
- Pressure Transmitters
- Emergency Shut Down with Automatic Valves
- Fire Safe and ATEX equipment
- (Optional) Flame Detector
- Telemetry with GPRS
- Safety Valves



Telemetrie



The End

Thank you for your attention

Questions/Remarks?