

# CITEPH

**Attentes des sponsors : GNL**

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## LNG in offshore condition

- ❖ LNG flow characteristics during offshore LNG transfer
- ❖ In line LNG measurement / Marinization

# LNG flow characteristics during offshore LNG transfer

## ❖ Investigation of LNG flow performances in a corrugated flexible hose

- Pressure drop assessment
- Physical phenomena involved (diphasic flow with local vaporization ?)
- Theoretical and experimental study

## ❖ Develop a simulation tool to assess pressure drop during offshore LNG transfer

- Characteristics of the transfer system (Aerial/Floating flexibles hoses, hoses number, hoses length, hoses diameter, pressure drop, hose material properties);
- Characteristic and number of LNG transfer pumps
- LNG flowrate
- Initial LNG quality

## ❖ Validation of simulation tool through experimental tests

# In line LNG measurement / Marinization

## ❖ The existing technologies are not mature for marinized applications

- Adapt or develop an in line measurement system useable in offshore conditions for process needed and/or custody operations (with adequate calibration, adequate diameter, good accuracy...)
- Develop an in line measurement system adapted to bunkering vessels for small scale LNG applications (flowrates around 1000 m<sup>3</sup>/hour)

GDF SUEZ

