

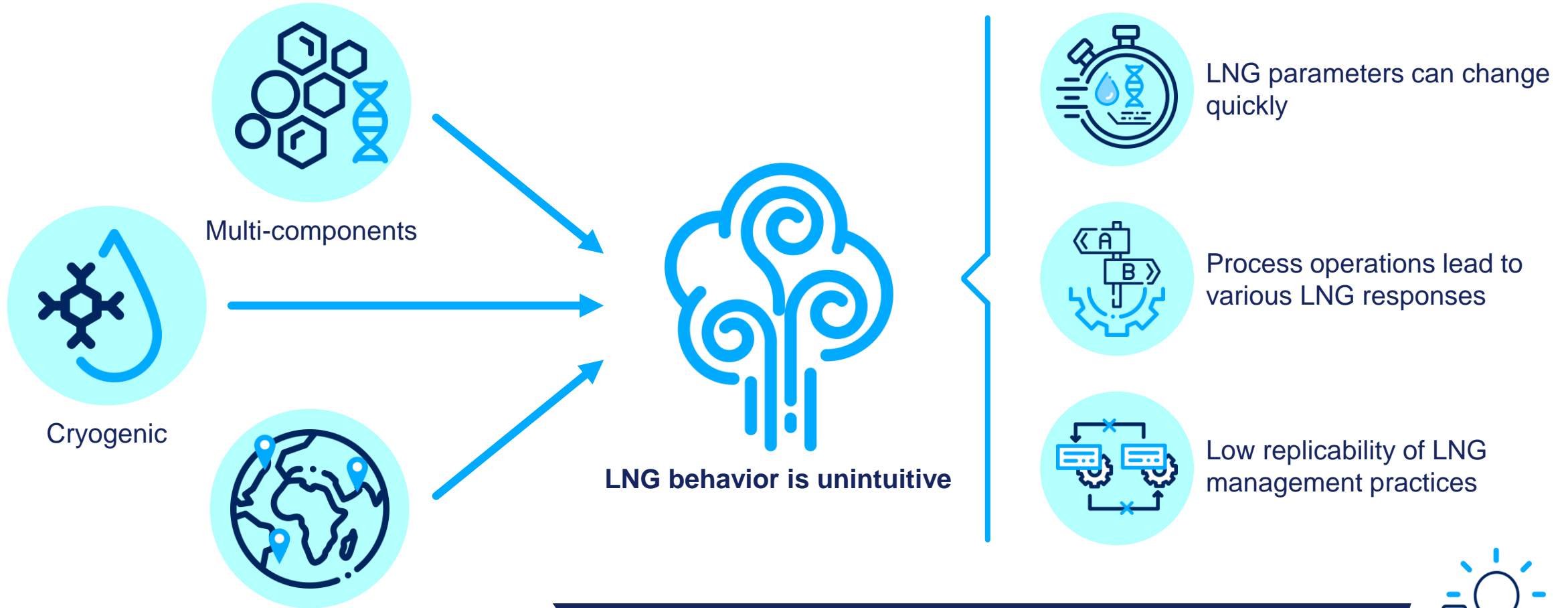
BECOMING A LNG EXPERT

LNG BEHAVIOR & STORAGE SAFETY



Getting to know an unintuitive fluid

Understanding LNG physics to master its behavior



Developing a knowledge-based practice for daily operations



Training objectives

What you will learn

Understanding 3 key LNG phenomena



BOG management

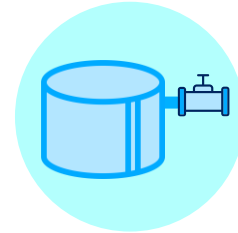


Aging

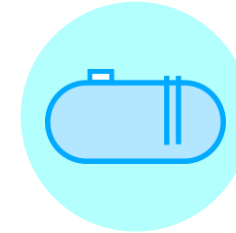


Stratification / rollover

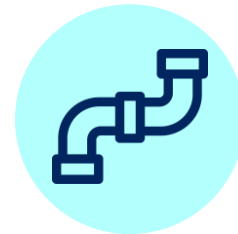
Analyzing LNG behavior in 4 situations



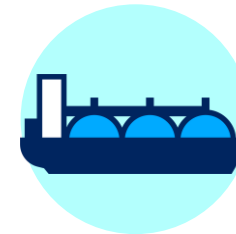
Open systems



Close systems



During transfer operations



During maritime transportations

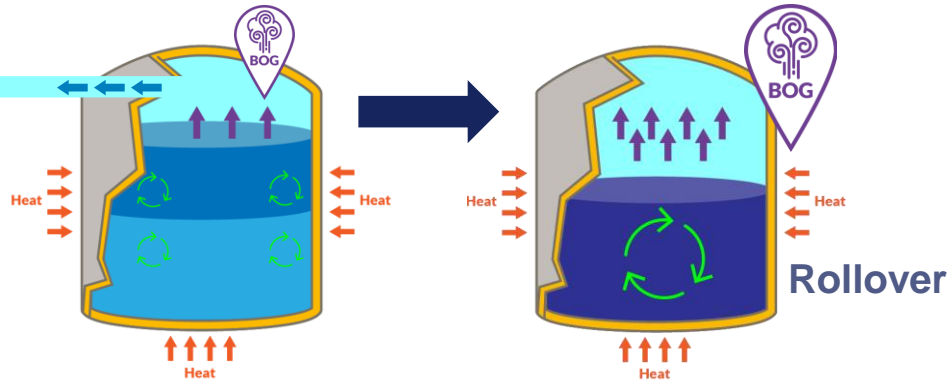
Strengthening knowledge to better manage specific operations



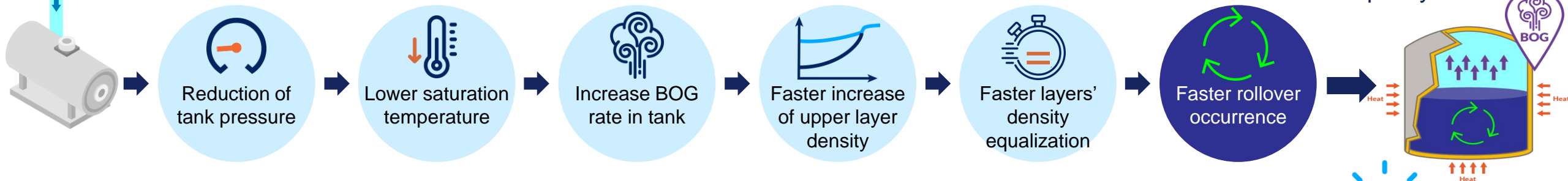
Best practice example – Stratification and rollover

How to avoid BOG peak and manage pressure?

No reaction: stratification leads to rollover, BOG peak and pressure rise



Intuitive reaction: increase compressor rate to prevent BOG peak







Once a stratification is detected, mitigation measures can be taken and optimized to reduce or avoid rollover effects.



Training packages

Tailor-made training session

Introduction to LNG	LNG behavior On-shore	LNG behavior Off-shore	Stratification and Rollover
 ½ day	 1 day	 1 day	 1 day
<ul style="list-style-type: none"> • Natural Gas and Liquified Natural Gas • Key parameters of LNG • LNG chain • Market insights • Key physical phenomena • Quiz 	<ul style="list-style-type: none"> • Onshore LNG specificities • Boil of gas, pressure monitoring • LNG quality evolution and terminal specifications compliance • LNG behavior due to key operations: loading, unloading, transfer, recirculation, send out, trans-shipment • Quiz and case study 	<ul style="list-style-type: none"> • Offshore LNG specificities • Boil of gas, pressure monitoring • LNG quality evolution and terminal specifications compliance • LNG behavior due to key operations: loading, unloading, bunkering, recirculation, send out, trans-shipment • Quiz and case study 	<ul style="list-style-type: none"> • Stratification evolution • Rollover severity • Mitigation strategies • Quiz and case study
All audience	Strengthen your knowledge		

Training is available online, at ENGIE CRIGEN offices or in your offices

Contact us to get a quotation: audrey.hubert@engie.com



Study staff

LNG team of experts



**Hamza
FILALI**

Hamza is head of the Liquefaction Lab of ENGIE R&D Center

Skills:

- LNG behavior prediction, simulations and analysis on large and small scale
- Gases liquefaction process development and technical-economic optimization

References:

- Speakers at international conferences (LNG2023, IGRC 2024).
- Regularly performing LNG studies and animating training sessions

Hamza.filali@engie.com



**Audrey
HUBERT**

Audrey is deputy head of the Liquefaction Lab

Skills:

- LNG behavior prediction, simulations and analysis on large and small scale
- Gases liquefaction and CCUS process development and technical-economic optimization

References:

- Speaker at international conferences (World Gas Conference 2022, LNG2023, LNG Congress 2024).
- Regularly performing LNG studies and animating training sessions

audrey.hubert@engie.com



**Rémi
LINOTTE**

Rémi is project manager and LNG expert at the Liquefaction Lab

Skills:

- Cryogenic gases (LH2 and LNG) behavior prediction, simulations and analysis on large and small scale
- Gases liquefaction process development and technical-economic optimization

References:

- Speaker at international conferences (IGRC 2024, Gastech 2024).
- Regularly animating LNG behavior training session and performing simulations study for clients

remi.linotte@engie.com



**Jérôme
TROMPE**

Jérôme is a LNG research engineer at the Liquefaction Lab

Skills:

- Cryogenic gases behavior prediction, simulations and analysis on large and small scale

References:

- Speaker at international conferences (LNG Congress 2025).
- Regularly animating LNG behavior training session and performing simulation studies for clients

Jerome.trompe@engie.com