



# Asset Security in Oil & Gas

An opportunity for new technology and collaboration

5/13/2019

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# One vision. One purpose.

## Vision

To enhance the performance of the world's energy industry

## Purpose

Bringing together the scope, know-how and determination to transform our clients' project economics

# TechnipFMC snapshot

1

Integrated solutions provider for the oil and gas industry

2

Stock exchange listings – NYSE and Euronext Paris

\$10B

Total company market capitalization<sup>1</sup>

\$13B

Total company revenue<sup>2</sup>

\$15B

Total company backlog<sup>3</sup>

\$6B

Total company cash balance<sup>4</sup>

<sup>1</sup> Public market quote from Bloomberg, LLP; TechnipFMC market capitalization as of February 21, 2019.

<sup>2</sup> Revenue as of December 31, 2018; Source: Form 8-K filed with the SEC on February 20, 2019.

<sup>3</sup> Backlog as of December 31, 2018; Source: individual company data as found in Form 8-K filed with the SEC on February 20, 2019.

<sup>4</sup> Cash and cash equivalents as of December 31, 2018; Source: Form 8-K filed with the SEC on February 20, 2019.

### ► Total Company

Revenue	Adjusted EBITDA*	Inbound orders	Year-end backlog
<b>\$12.6bn</b>	<b>\$1.5bn</b>	<b>\$14.3bn</b>	<b>\$14.6bn</b>

### ► Subsea



Revenue	Adjusted EBITDA	Inbound orders	Backlog
<b>\$4.8bn</b>	<b>\$700m</b>	<b>\$5.2bn</b>	<b>\$6bn</b>

### ► Onshore/Offshore



Revenue	Adjusted EBITDA	Inbound orders	Backlog
<b>\$6.1bn</b>	<b>\$830m</b>	<b>\$7.4bn</b>	<b>\$8.1bn</b>

### ► Surface Technologies



Revenue	Adjusted EBITDA	Inbound orders	Backlog
<b>\$1.6bn</b>	<b>\$260m</b>	<b>\$1.7bn</b>	<b>\$470m</b>

### Business segment highlights

We **successfully delivered three IEPCI™** projects, two for Equinor and one for Shell's Kaikias development

Our services business returned to growth and was **awarded a master services agreement** by Petrobras in Brazil

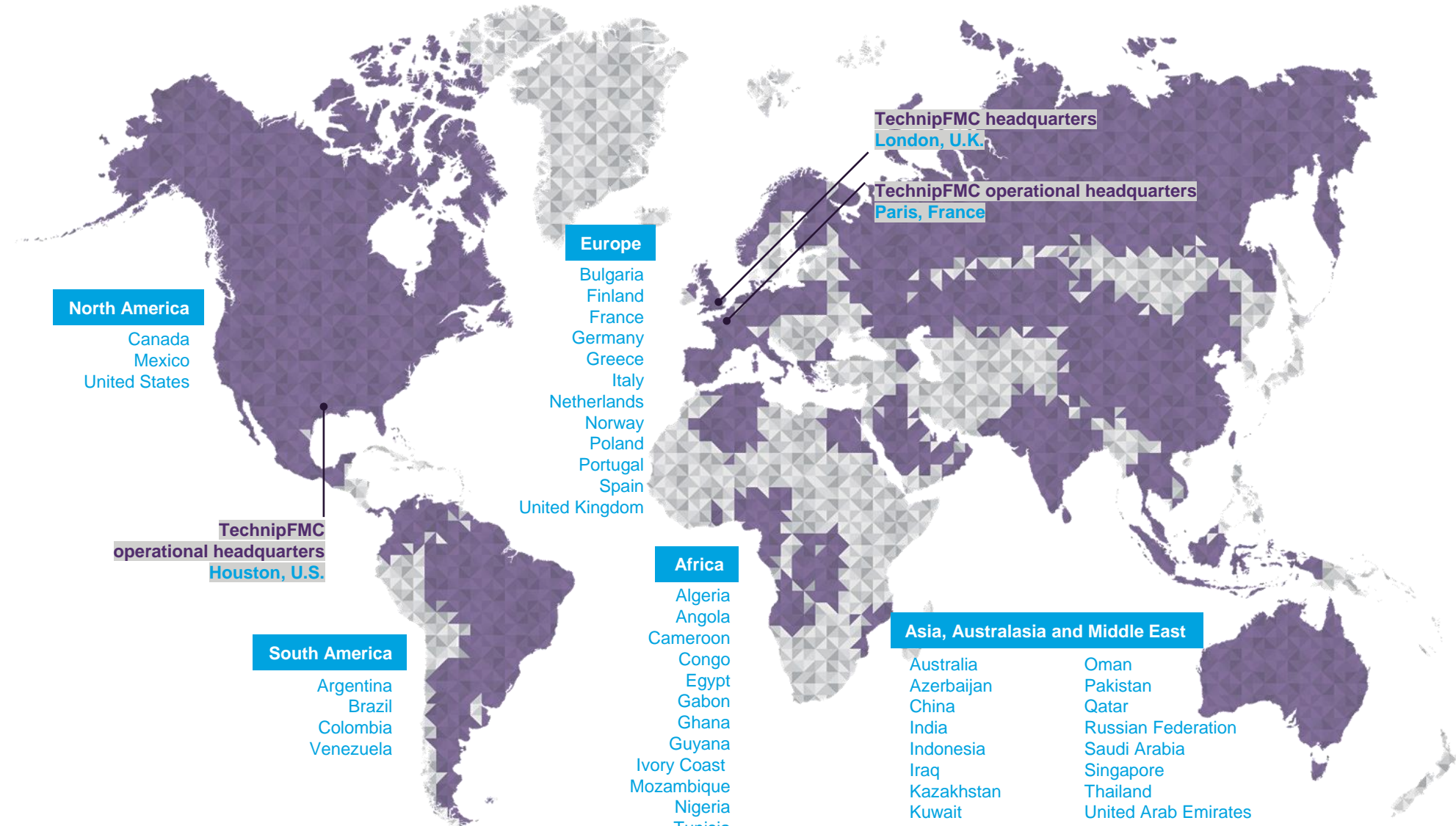
A **strong execution performance** helped us deliver Trains 2 and 3 early for Yamal LNG in Russia. Train 3 was **12 months ahead of schedule**

2018 was the **second highest Inbound level** for Onshore/Offshore in the last decade and our **competitive advantage** drives industry-leading returns

Total segment orders grew by 36 percent, **driven by 70 percent growth** outside the Americas

Our frame agreement with Chevron **leverages the value we create** through our integrated drilling and completion offering

# Unique worldwide footprint



**North America**  
Canada  
Mexico  
United States

**TechnipFMC operational headquarters**  
Houston, U.S.

**South America**  
Argentina  
Brazil  
Colombia  
Venezuela

**Europe**  
Bulgaria  
Finland  
France  
Germany  
Greece  
Italy  
Netherlands  
Norway  
Poland  
Portugal  
Spain  
United Kingdom

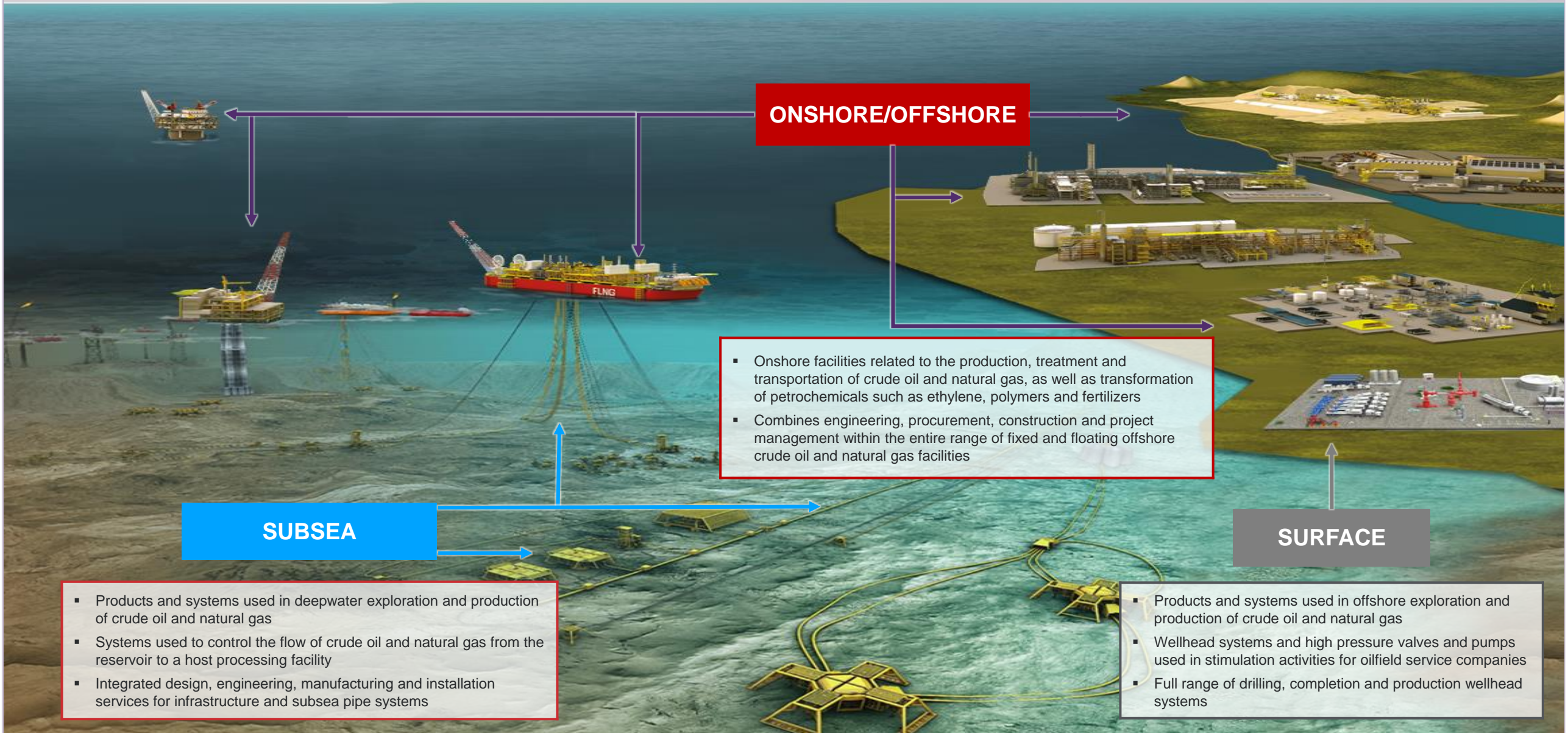
**TechnipFMC headquarters**  
London, U.K.

**TechnipFMC operational headquarters**  
Paris, France

**Africa**  
Algeria  
Angola  
Cameroon  
Congo  
Egypt  
Gabon  
Ghana  
Guyana  
Ivory Coast  
Mozambique  
Nigeria  
Tunisia

**Asia, Australasia and Middle East**  
Australia  
Azerbaijan  
China  
India  
Indonesia  
Iraq  
Kazakhstan  
Kuwait  
Malaysia  
New Caledonia  
Oman  
Pakistan  
Qatar  
Russian Federation  
Saudi Arabia  
Singapore  
Thailand  
United Arab Emirates  
Vietnam

# Broadest portfolio of solutions for the oil & gas industry



# Comprehensive offering – from concept to project delivery and beyond

## A unique global leader in oil and gas projects, technologies, systems and services

### Subsea

#### Subsea products

- ❑ Trees, manifolds, control, templates, flowline systems, umbilicals & flexibles
- ❑ Subsea processing
- ❑ ROVs and manipulator systems

#### Subsea projects

- ❑ Field architecture, integrated design
- ❑ Engineering, procurement

#### Subsea services

- ❑ Drilling systems
- ❑ Installation using high-end fleet
- ❑ Asset management & production optimization
- ❑ Field IMR and well services

### Onshore/Offshore

Project management, proprietary technology, equipment and early studies to detailed design

#### ❑ Offshore

Fixed platforms (jackets, self-elevating platforms, GBS, artificial islands) and floating facilities (FPSO, semi submersibles, Spar, TLP, FLNG)

#### ❑ Onshore

Gas monetization, refining, petrochemicals, onshore pipelines, furnaces, mining and metals

#### ❑ Services

Project management consultancy, process technologies

### Surface

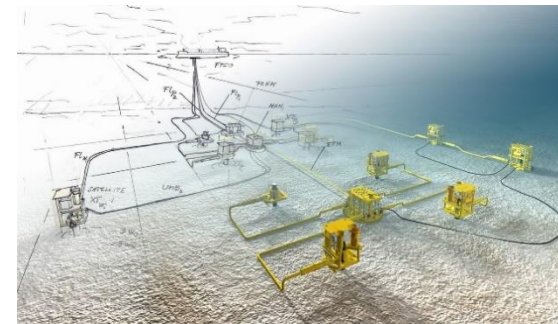
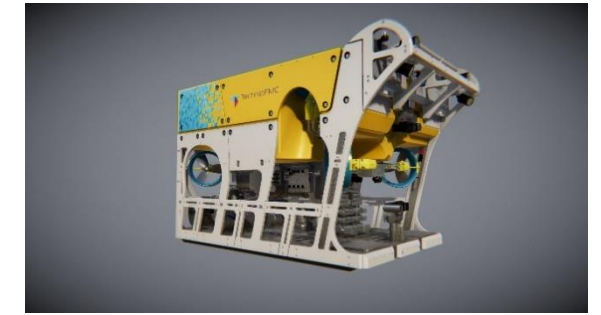
- ❑ Drilling, completion and production wellhead equipment, chokes, compact valves, manifolds and controls
- ❑ Treating iron, manifolds, and reciprocating pumps for stimulation and cementing
- ❑ Advanced separation and flow-treatment systems
- ❑ Flow metering products and systems
- ❑ Marine, truck, and railcar loading systems
- ❑ Installation and maintenance services
- ❑ Frac-stack and manifold rental and operation services
- ❑ Flowback and well testing services

# Subsea competitive strengths

Market leading positions built upon innovation and deep industry knowledge

Differentiated offering of integrated products, services: iFEED™, iEPCI™ and iLoF™

Technology advancements to drive greater efficiency and simplification



FEED Studies

Subsea Production Systems

Flexibles

Umbilicals

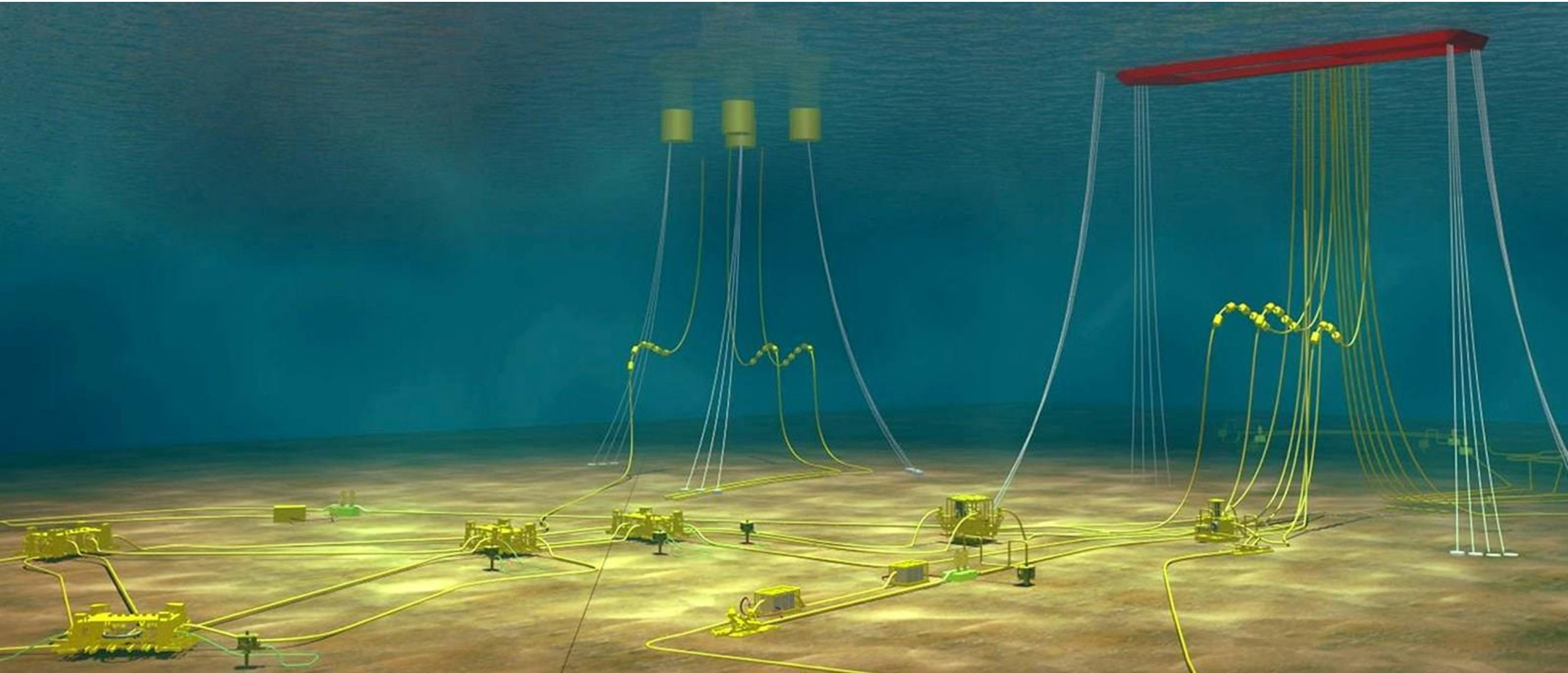
Installation

iEPCI™

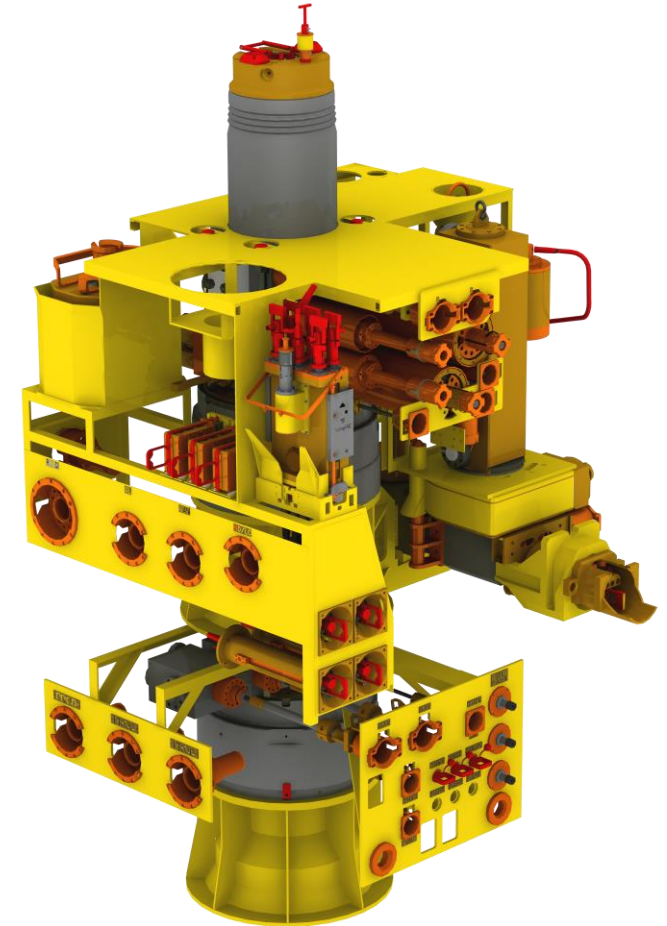
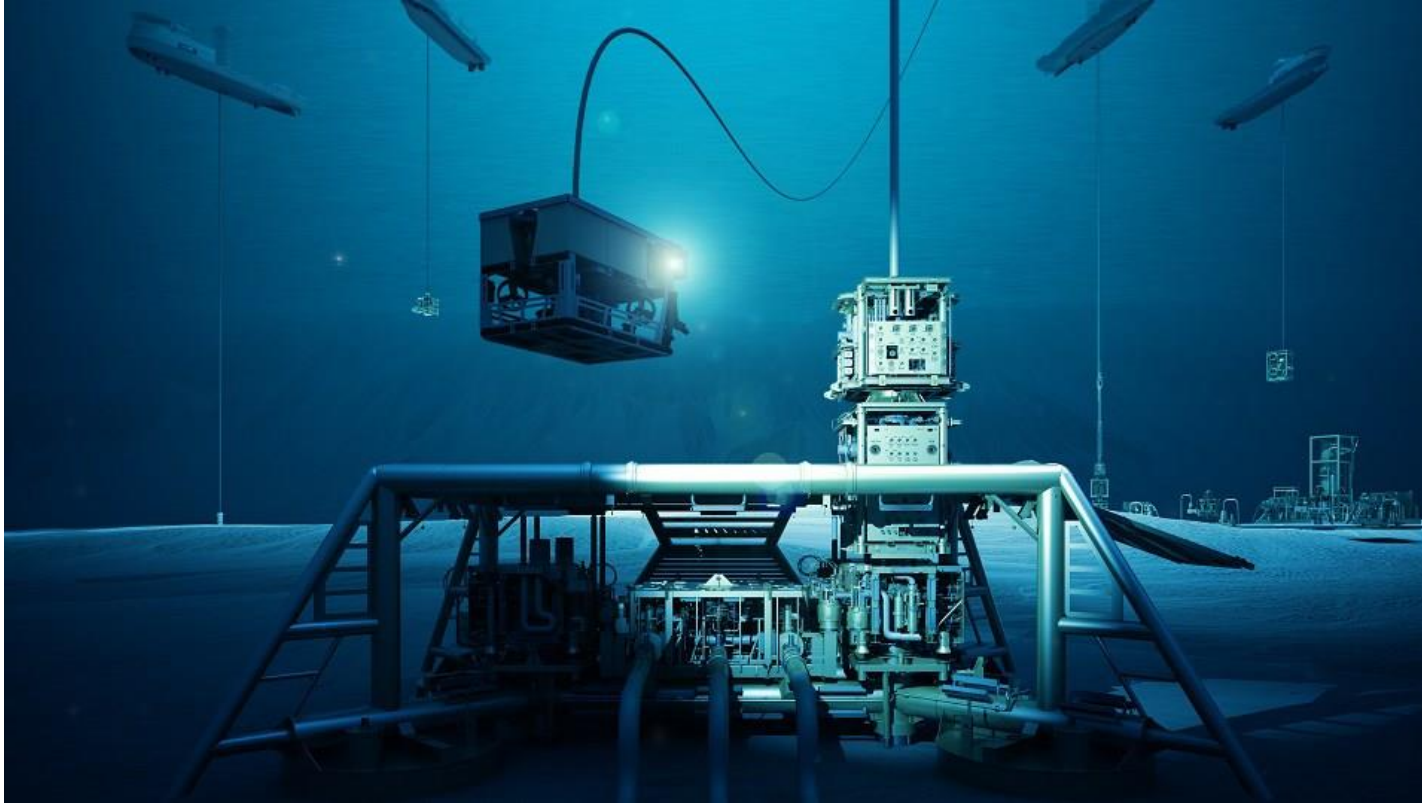
Field Services



# Subsea assets

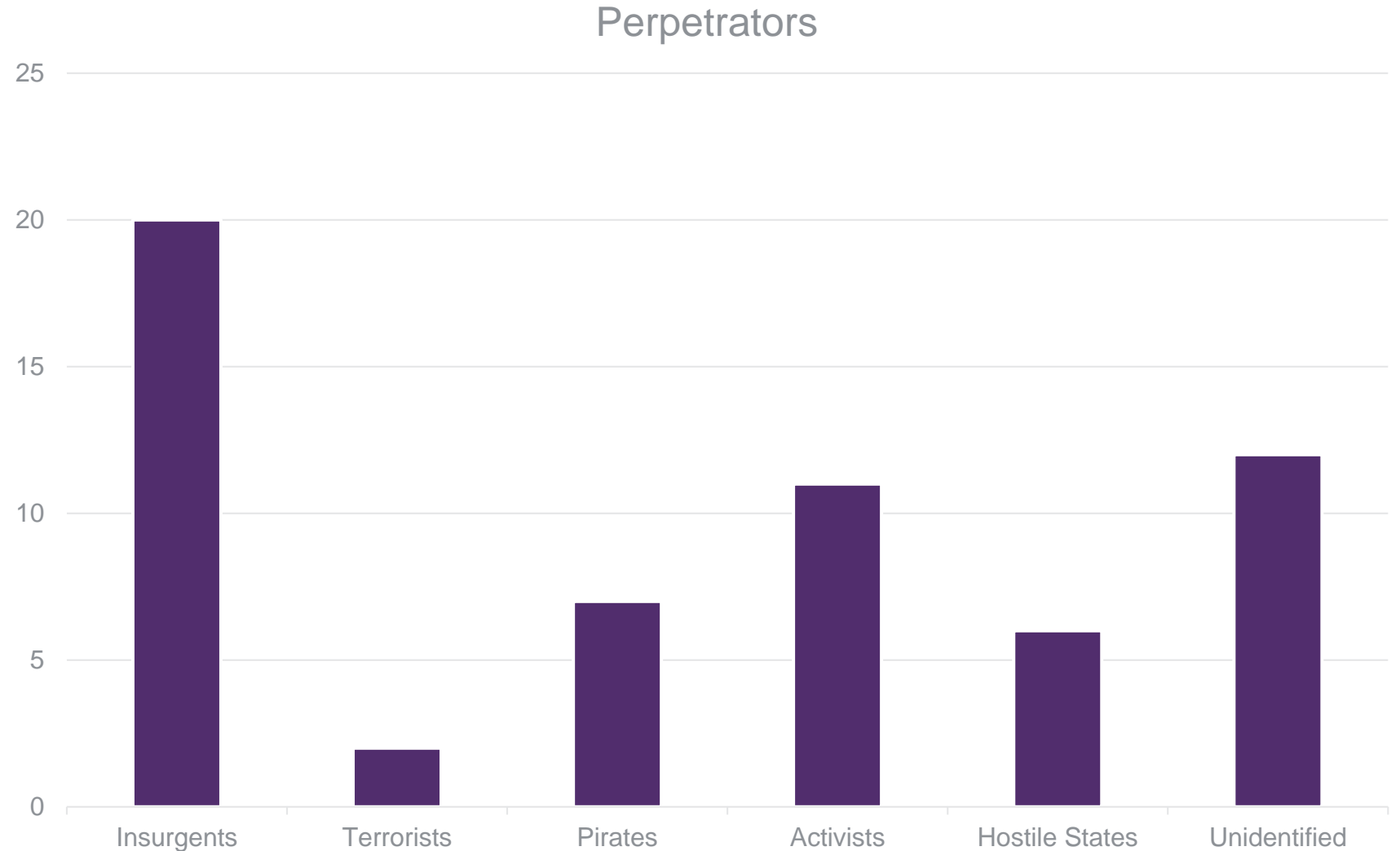


# Subsea assets



# Threats to asset security

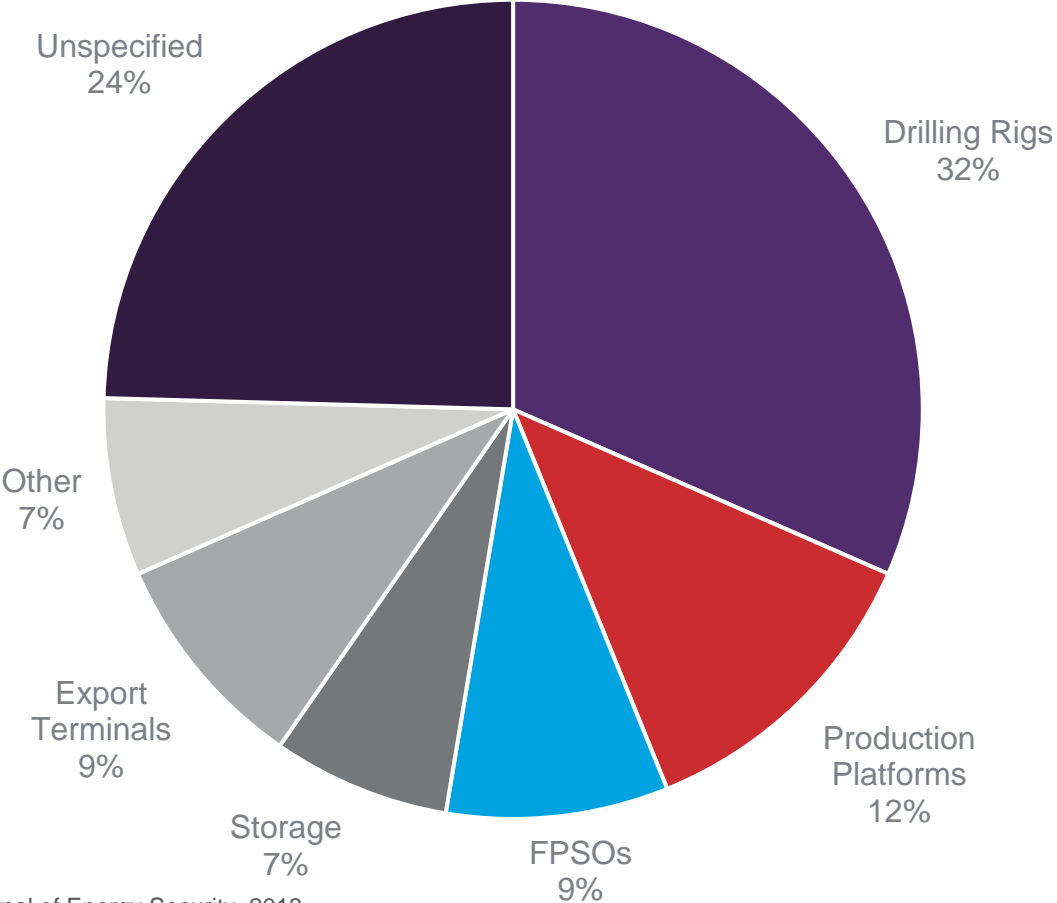
1. Piracy
2. Terrorism
3. Insurgency
4. Organized crime
5. Civil protest
6. Inter-state hostilities
7. Vandalism
8. Internal sabotage



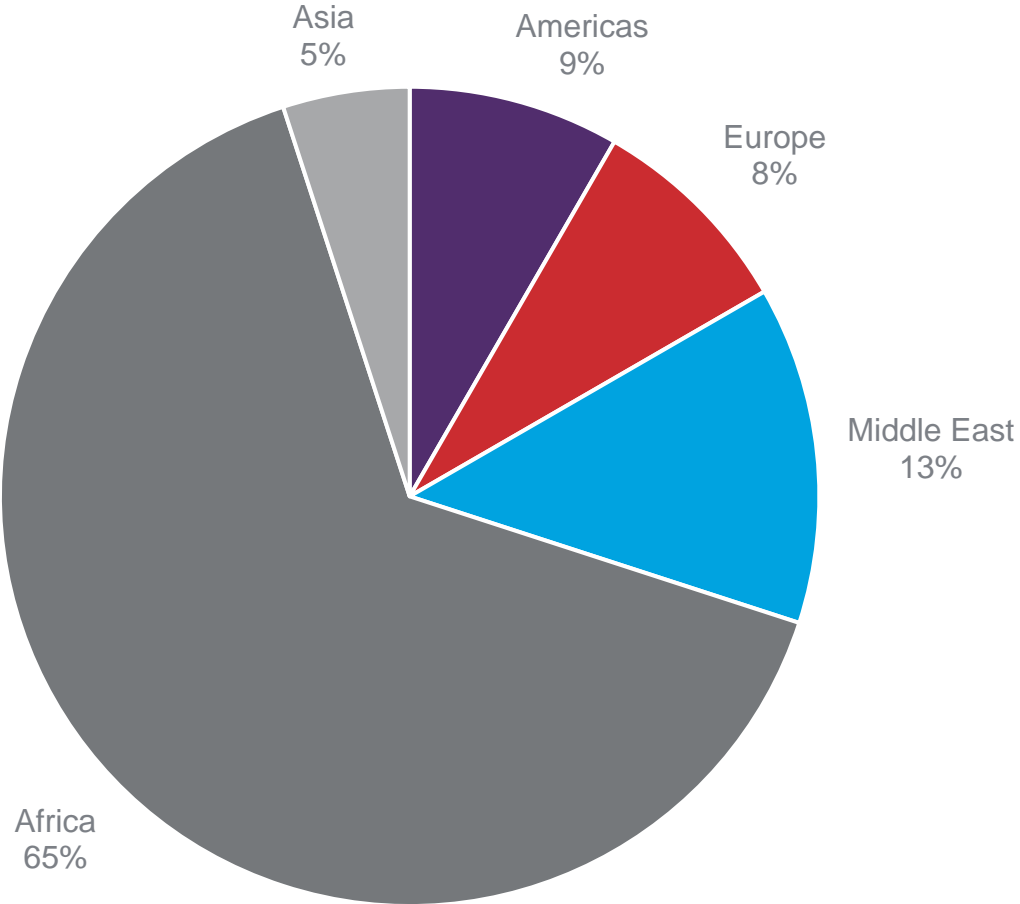
Journal of Energy Security, 2013

# Breakdown of 60 incidents

### Type of Facility



### Location

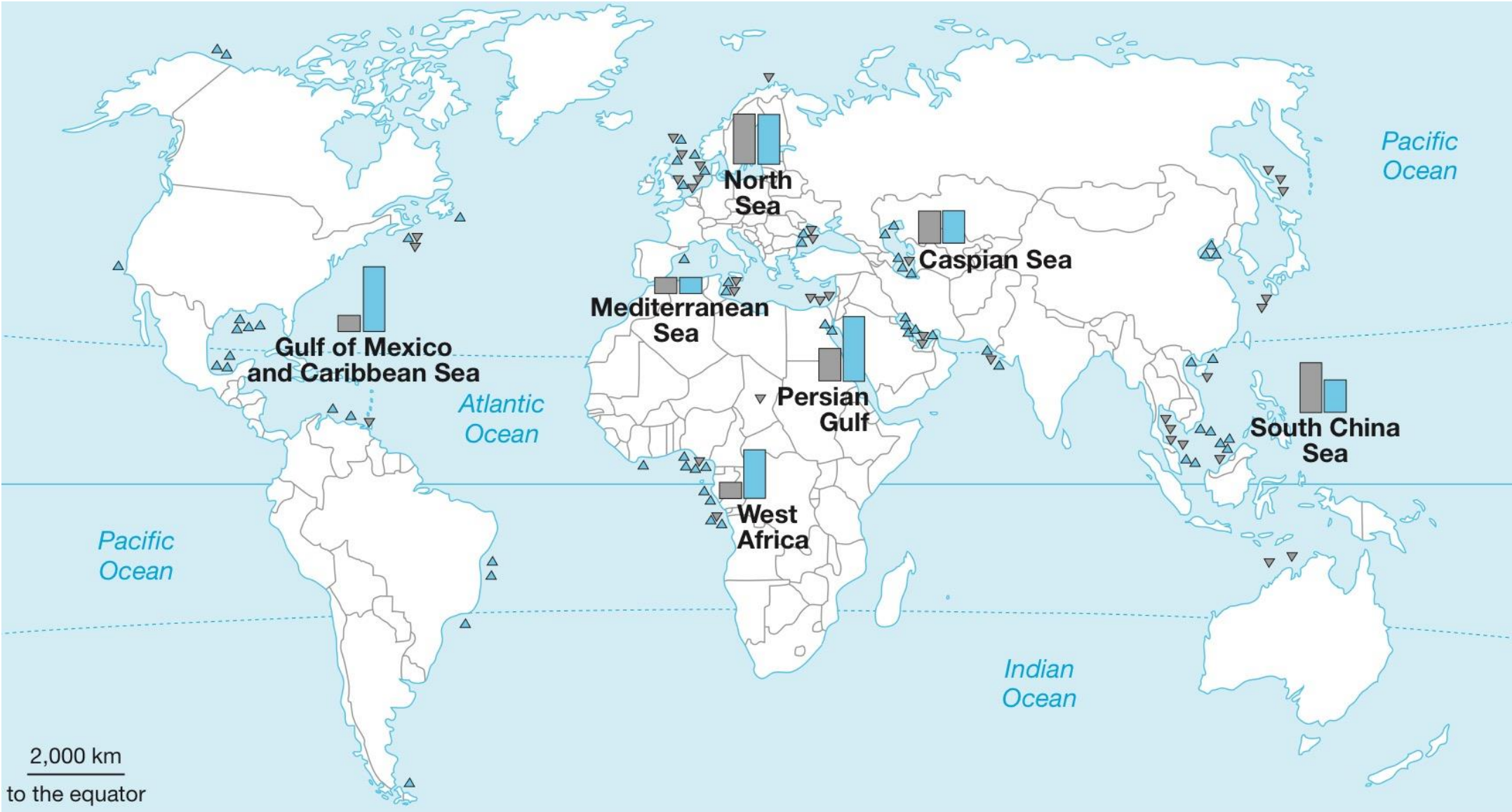


Journal of Energy Security, 2013

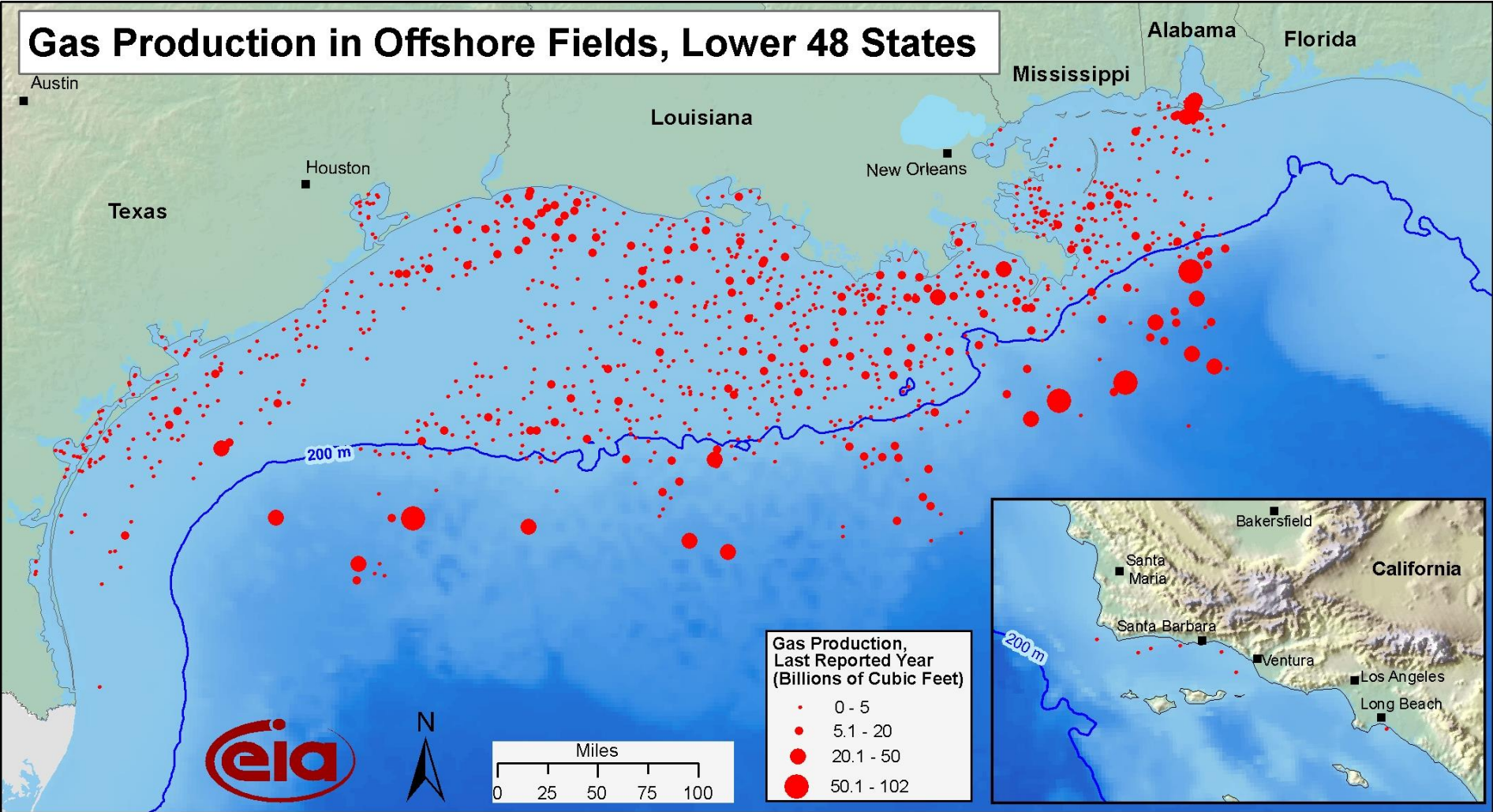
# What's at stake?



# Asset distribution



# Vulnerability - widely distributed



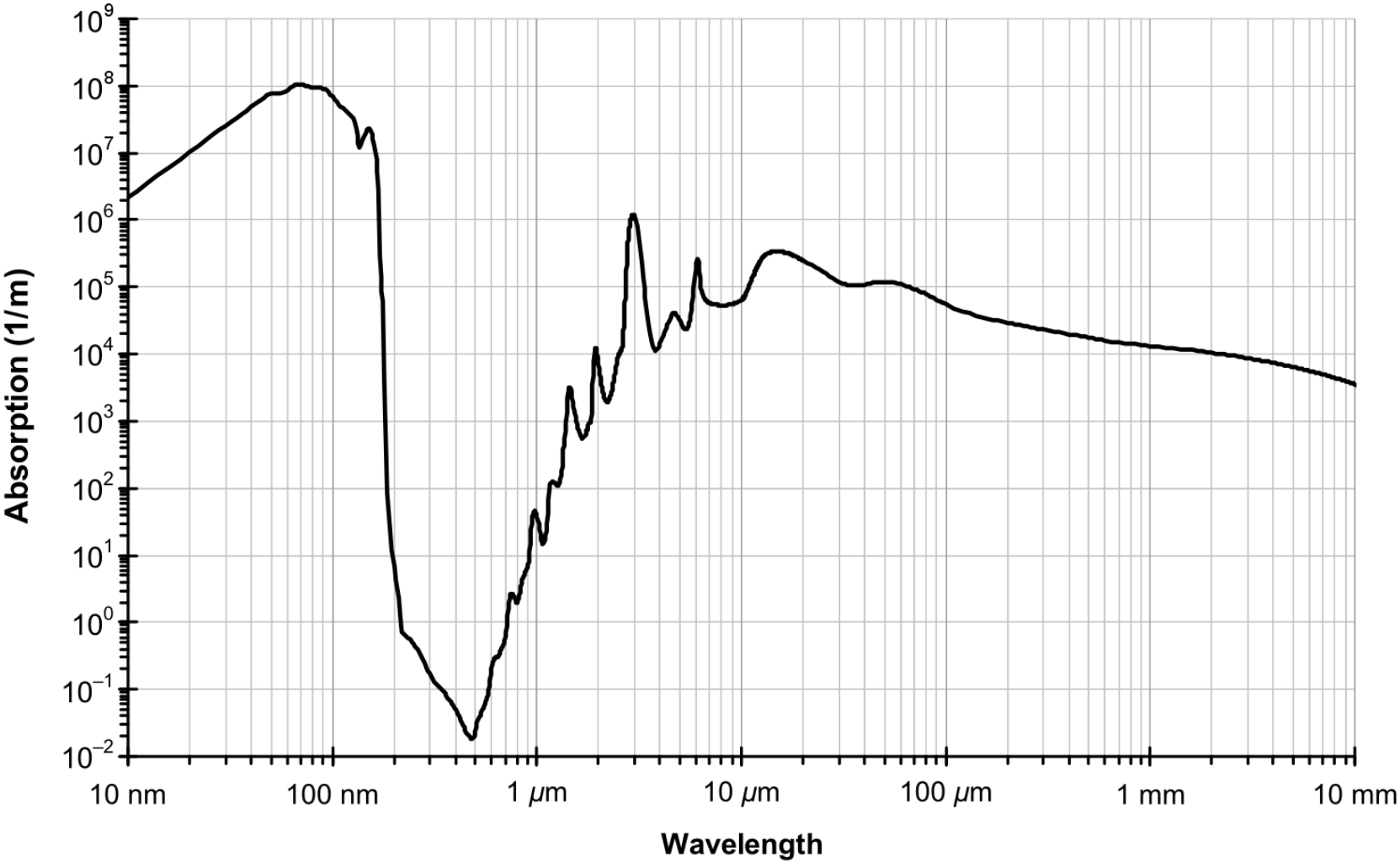
Source: Energy Information Administration based on data from MMS, HPDI, CA Dept of Oil , Gas & Geothermal  
Updated: April 8, 2009

# Vulnerability – low awareness

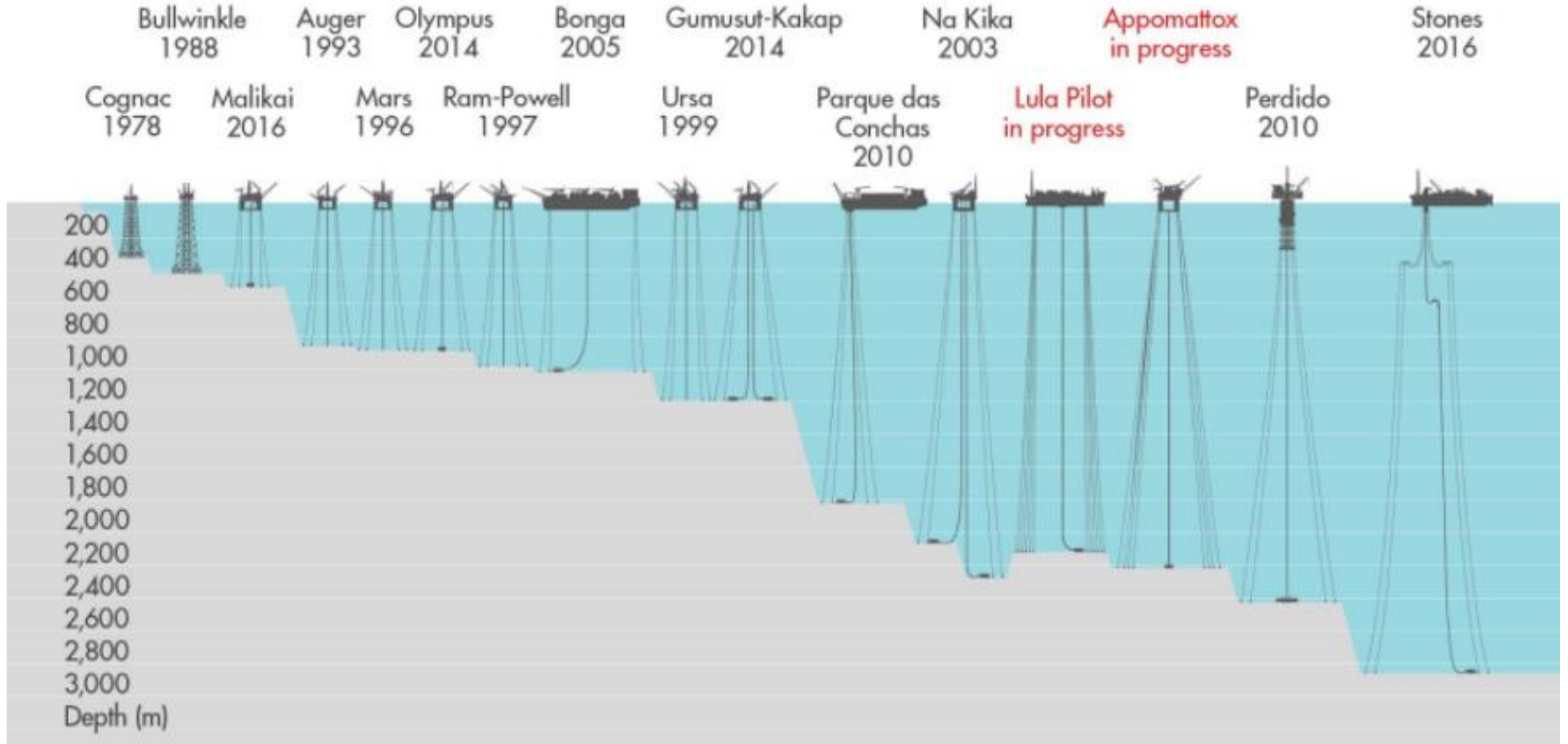




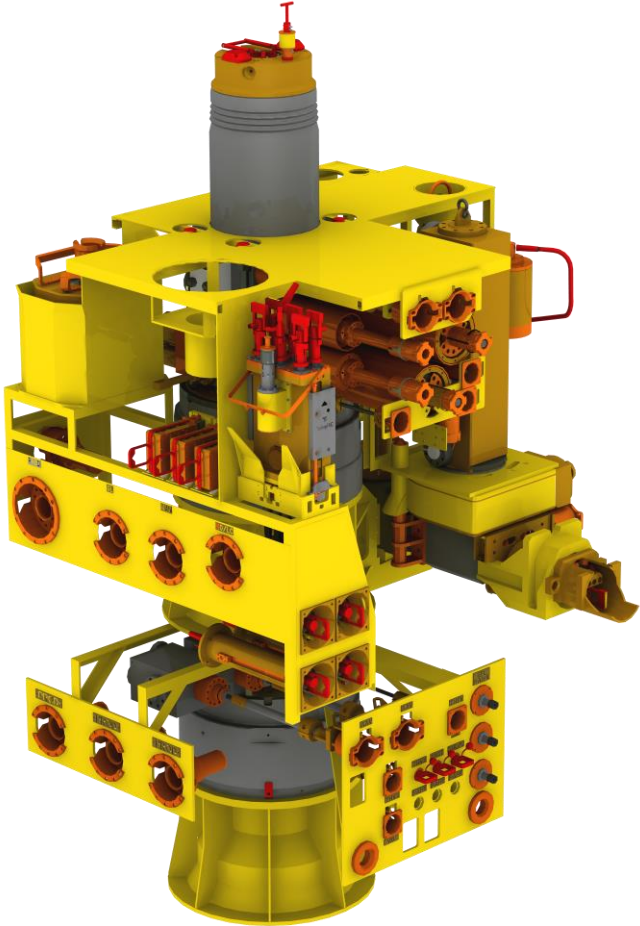
# Vulnerability – poor connectivity



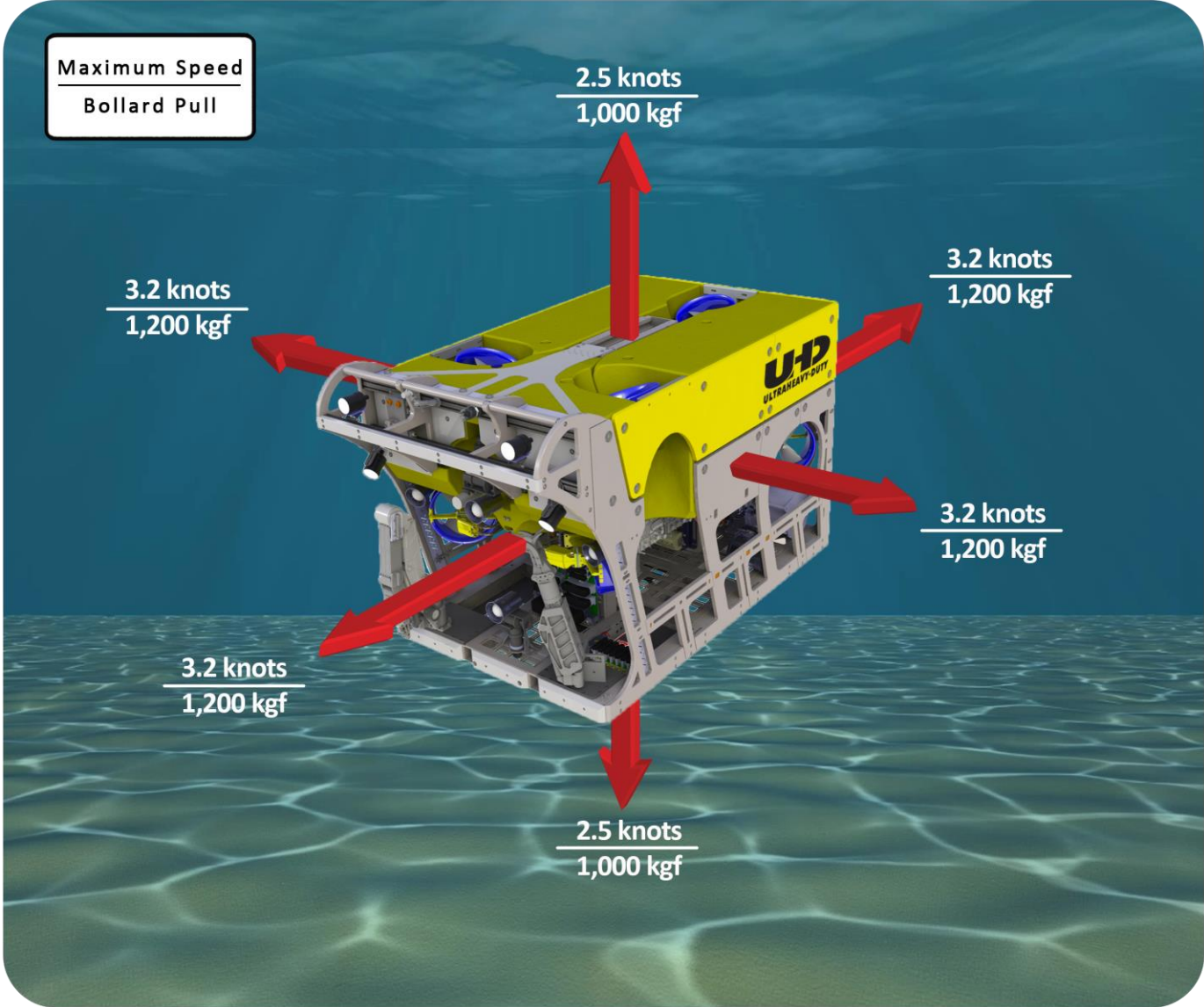
# Protection - remote



# Protection - robust design



VS



# Right-sized production equipment – more vulnerable?



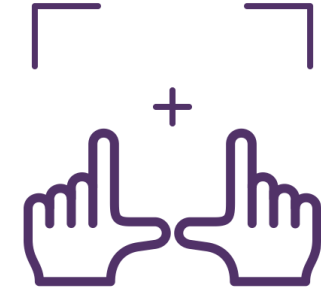
# What can we do to better protect our subsea assets?



# Pan industry effort to develop a subsea wireless network

## Awareness

- More ubiquitous sensing



## Coverage & Response

- Enables dynamic assets (supervisory controlled robots)



