



Workshop Objectives

- The objectives are:
- to share knowledge across communities (oil & gas decom, marine science, salvage and offshore wind);
- to gather suggested solutions and gaps for further examination.





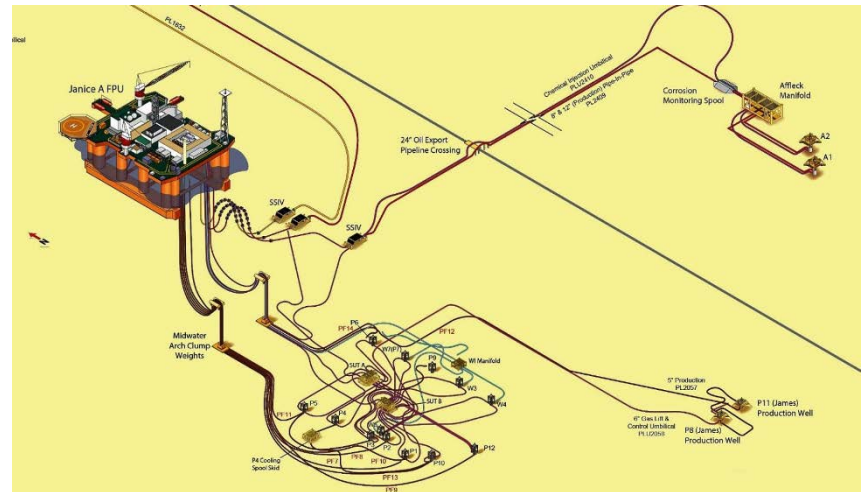
PROCESS

- Set the Context
 - O&G
 - ORE
 - Other users
- Explore the monitoring and inspection requirements versus the context
 - Short and long term
 - Geographical
 - Application
- Refine versus Megatrends
 - Hydrocarbon exploration declines
 - Carbon Capture increases
 - Renewables energy production increases
 - What happens if that changes? Test sensitivities
- Gap analysis and suggestions
 - What is existing best practice, and in use
 - What is needed compared to above – suggestions, innovations, future calls
 - How do we get there?



Context

- **O&G Installations**
- 660 assets across the North Sea
 - not inc. sub-sea manifolds, wellhead structures, pipelines etc
- **Offshore Wind**
 - 1,500 active assets in 2017
 - 11,000 installations by 2050
 - Not Inc. cables, converter stations, other subsea structures





- Main problems / challenges
 - Commercial
 - Meeting legislative obligations
 - Stakeholder needs
 - Risk Management / safety
 - Human / cultural factors
 - Cost
 - Technical
 - Traceability and record management
 - Measuring Environmental impacts
 - Understanding the future needs
 - Defining Acceptable
 - Obtaining meaningful HALT
 - Modelling physical degradation mechanisms and validating
 - Gathering diffuse data
 - Data storage and transmission





3 Questions

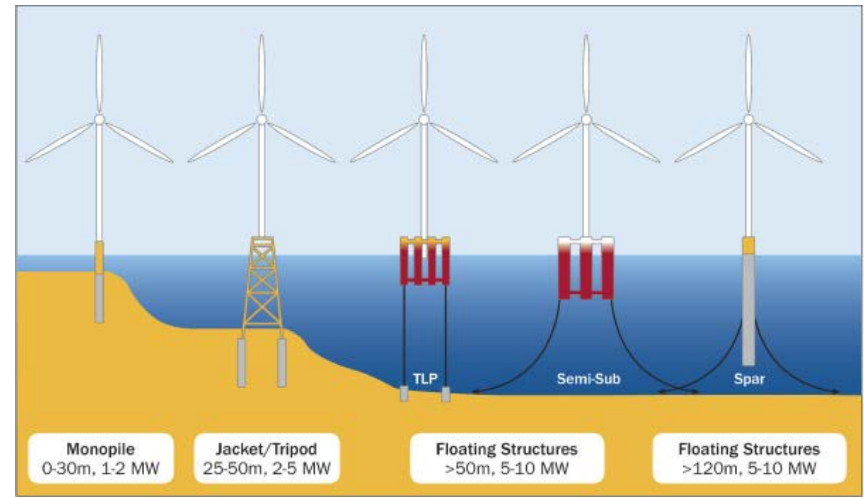
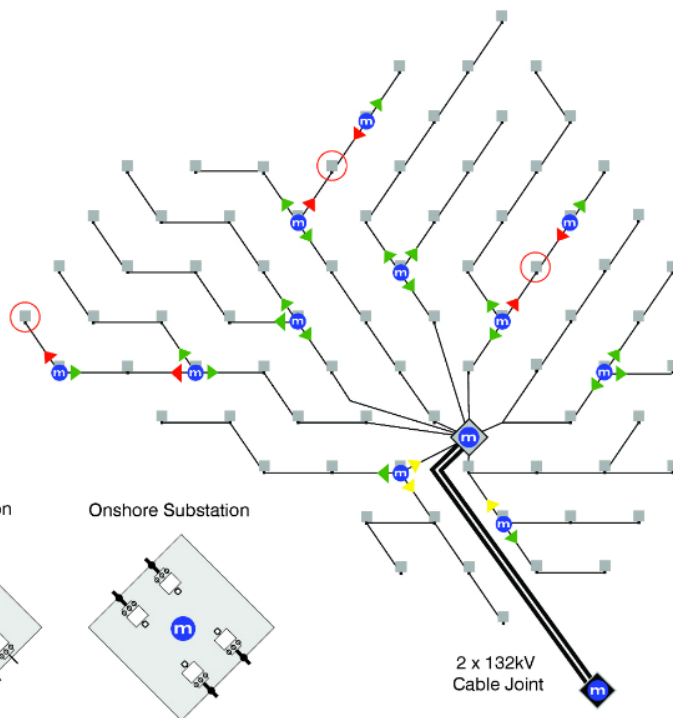
- What are the most demanding and important monitoring and inspection challenges facing the Offshore industry, and their solutions?
- What solutions can be adapted from other industries to help us meet these demands, and what gaps are there?
- What routes to commercial adoption and exploitation exist and are needed to ensure that we meet the industry & stakeholder needs?



SUT MASTS BACK UP



Offshore Wind Infrastructure



- Fixed and floating structures
- Cables, terminations, transitions
- Sub-sea power conversion
- Anchoring systems
- Met-Masts



Decommissioned Structures

- Foundations – 2m below mudline
- Cables
 - If 1-2m trenched, will stay in place, and monitored
 - If surface, removed and recycled
- The first structures are being decommissioned
 - Management
 - Learning
 - Costs

