



moray west
OFFSHORE WIND FARM

Operations & Maintenance

External Presentation

27.08.2020

O&M Strategy at a glance

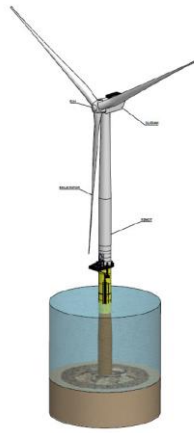
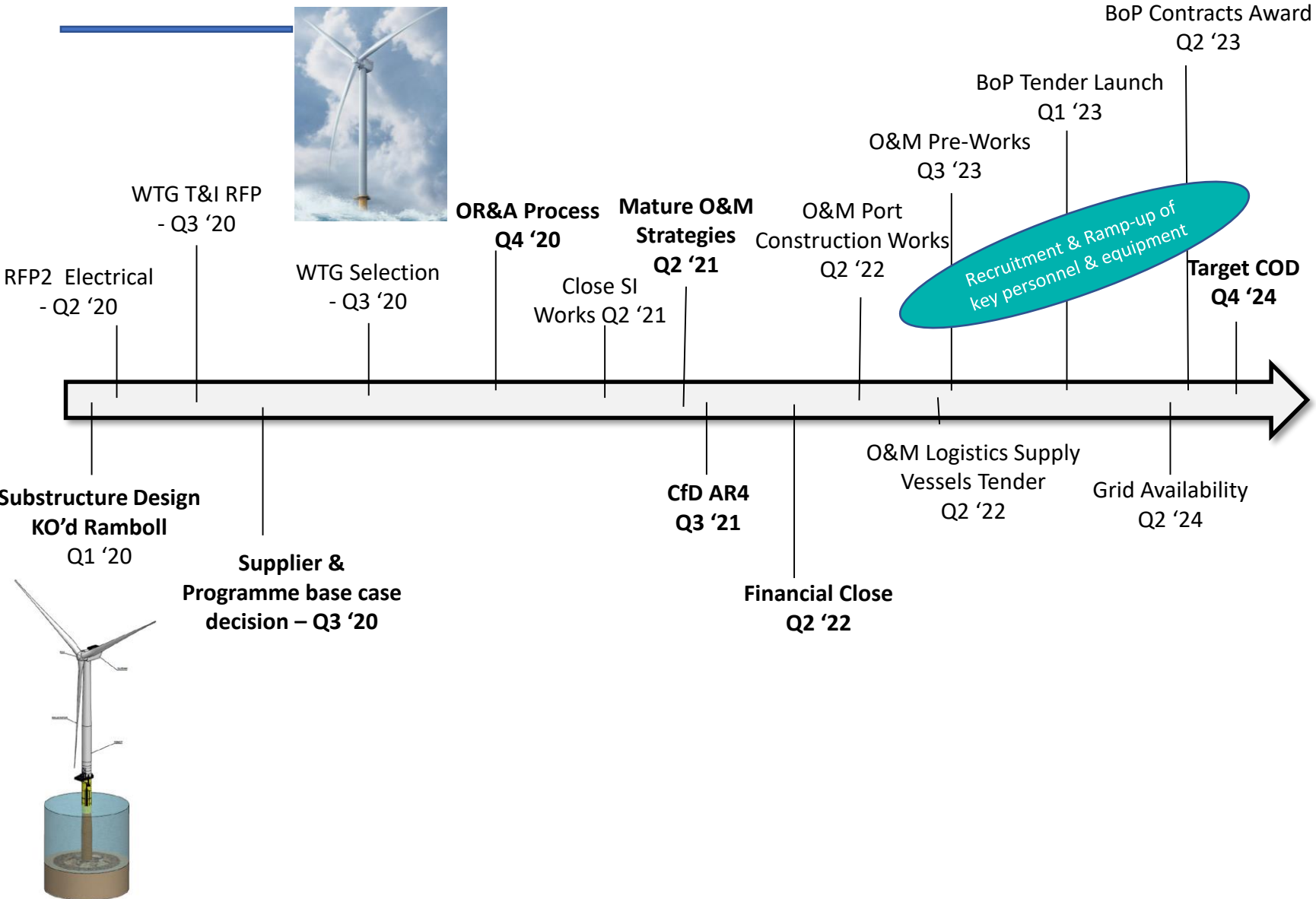


Responsibilities

- OFTO
- Moray West Interface (Inter Array to OHVS)
- Moray West
- WTG OEM
- WTG OEM

Ensure all Moray West assets are covered and that responsibilities and interfaces are clear.

Indicative Development Timeline



Operations Readiness & Assurance

Gate
1

Gate
2

Gate
3

FID

Mobilisation Phase

Concept Phase

De-risking & Development Phase

Appoint Senior O&M Team

Develop O&M philosophies

Maturing of O&M philosophies and the development of O&M strategies

Mature & Manage:-

- O&M competence assessment
- Define O&M and BOP maintenance contract strategy.
- Identify suppliers for BOP maintenance.
- Prepare BOP maintenance tender package.
- Issue BOP tender & select suppliers.
- Recruitment plan for O&M organisation.

Develop:-

- O&M base delivery plan.
- Asset integrity management strategy.
- CMMS functional specification.
- O&M optimisation studies
- Marine coordination & logistics strategy.

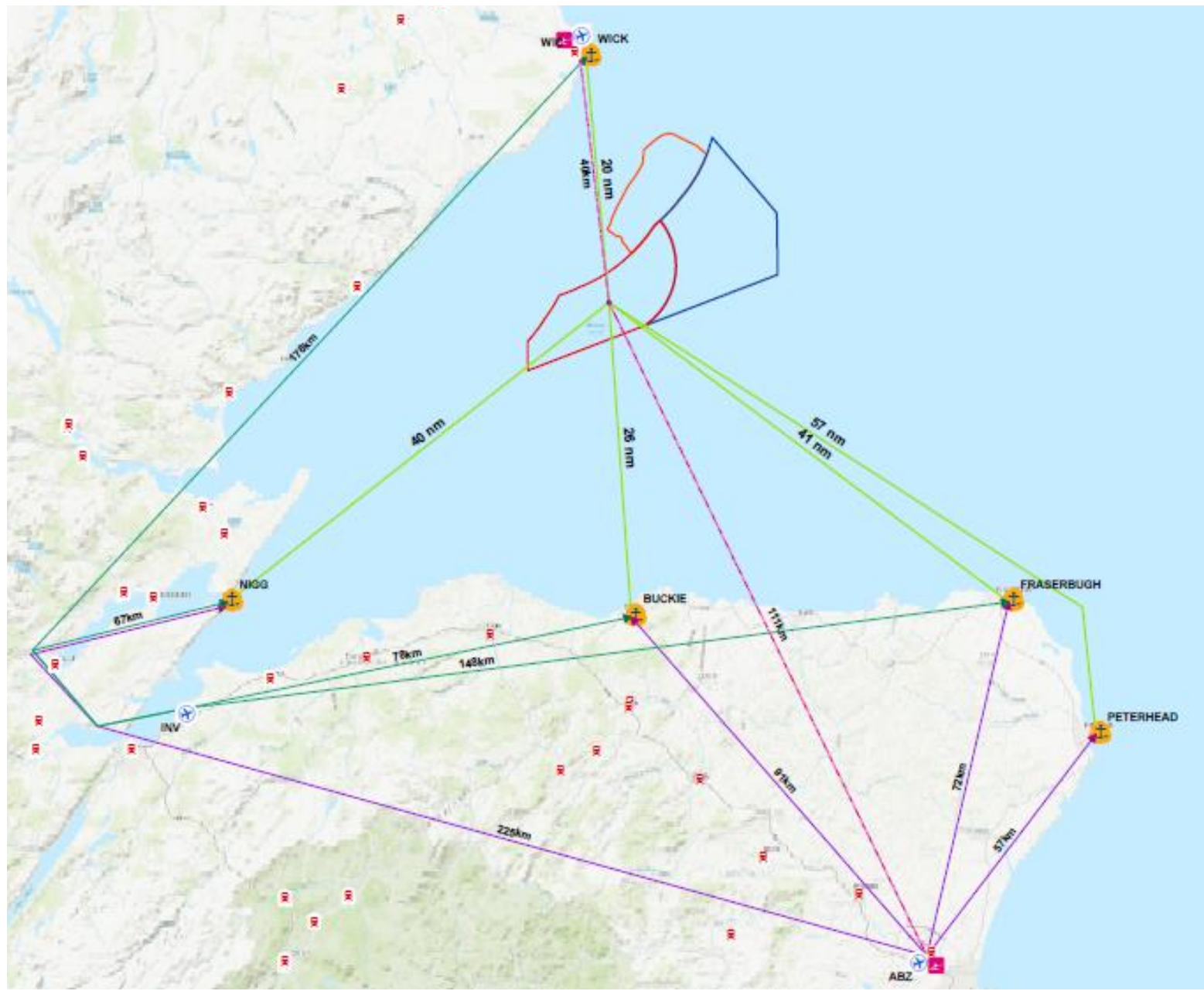
Identified Work Packages



WP1 Wind Turbine Generator	WP3 Infield Cables	WP5 Weather Buoy & Metmast	WP8 Onshore Substation
Corrosion protection	Cable monitoring & protection system	FLiDARS	SCADA, Network & IT
SCADA Network & IT	Joints		

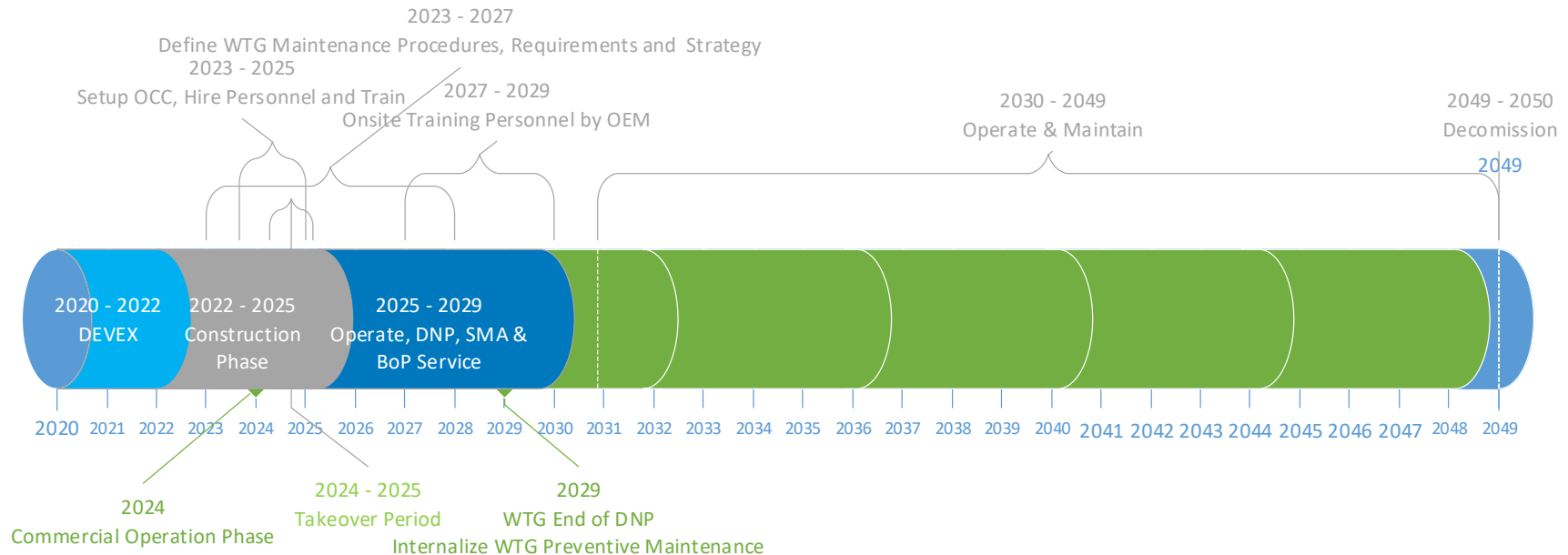
WP2 Foundations	WP4 Offshore Substation	WP6 Offshore Logistics	WP9 Operations Management
LV Equipment	HV Equipment	Crew Transfer Vessel	Production Management
Bolted Connections	Temporary Power Generation	Service Operation Vessel	Marine/Flight Coordination
Ladders/Stairs/railings/platforms	LV Equipment	Crane Vessel	Maintenance Management
Structural/ Secondary Steel Above Water	Cranes and Hoists	WP7 Export Cable	Warranty management
		Hang Off	Warehousing
		Cable monitoring & protection	Spare Part Management and Storage

O&M Ports under assessment for optimal solution



O&M Recruitment of key personnel to build operations team

- Marine Coordination
- Senior Authorised Personnel
- Maintenance Technicians
- Crane Operators
- Planning, Document Control and Warehouse Management



Summary Remarks



Open4Buisness <https://www.o4b-highlandsandislands.com/>



Register with Supplier databases

Project website www.moraywest.com/supply-chain/supply-chain-registration

Scottish Industry Directory osw.directories.scot/

DeepWind membership



Embed O&M early in development phases to build **roadmap** focused on achieving **safe** and **reliable** operations and integrate lessons learned from **Moray East**.



Moray West keen to Initiate **designs** on O&M **Internalisations** to capitalise on internal industrial **experience** to prepare for the **future** post long term service agreements.

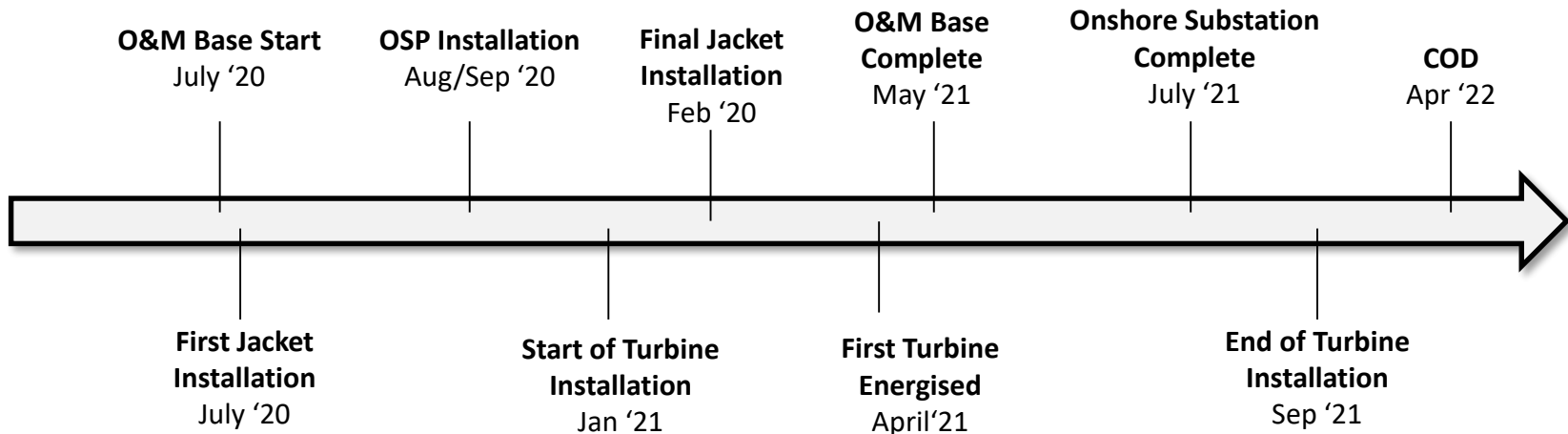
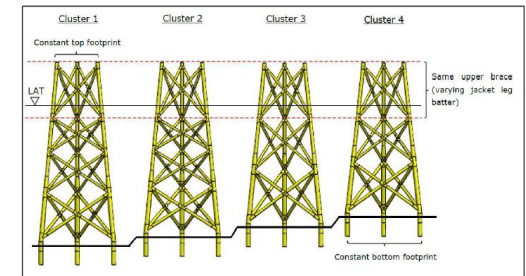
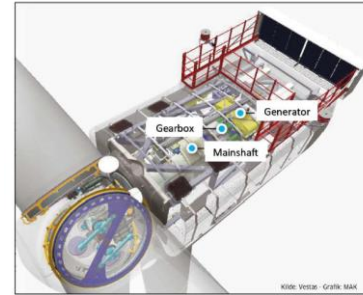


Open to Build **partnerships**, **utilize** advancing **technology** to adapt to size, scale and challenges offshore through **optimised** *IMR, RBI, RCM & FMEA approaches working together with local supply chain.

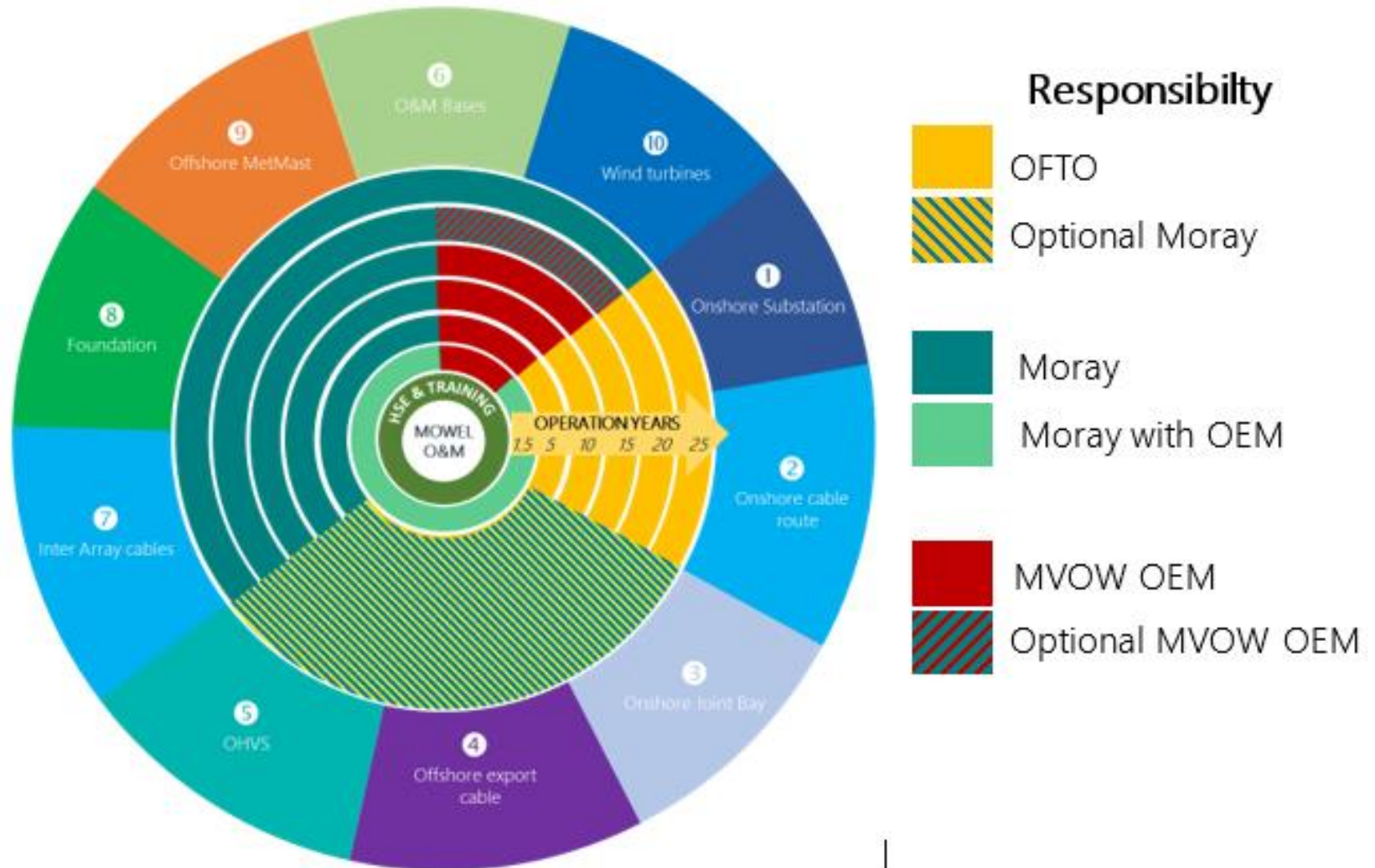
*Inspection Maintenance & Repair (IMR), Risk Based Inspection (RBI), Reliability Centred Maintenance (RCM) & Failure Modes Effects Analysis (FMEA) & Asset Integrity Management (AIM).

Moray East High Level Overview

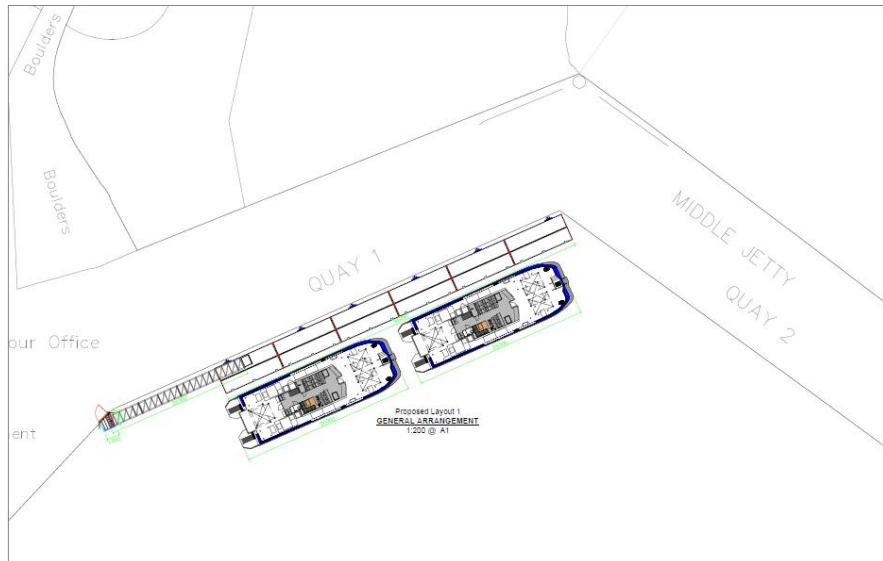
- 950MW Installed Capacity
- 100 x V164 9.5MW WTG's
- 103 x 3 legged jackets foundations
- 3 x OSP (66 to 220kV)
- Inter array cables (66kV)
- Offshore export cable (220kV)
- Onshore export cable (220kV)
- Onshore Substation (220kV to 275kV)
- O&M base Fraserburgh



Moray East O&M Strategy at a glance



Moray East O&M Facilities Overview - Fraserburgh





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