

MP Multi-Use



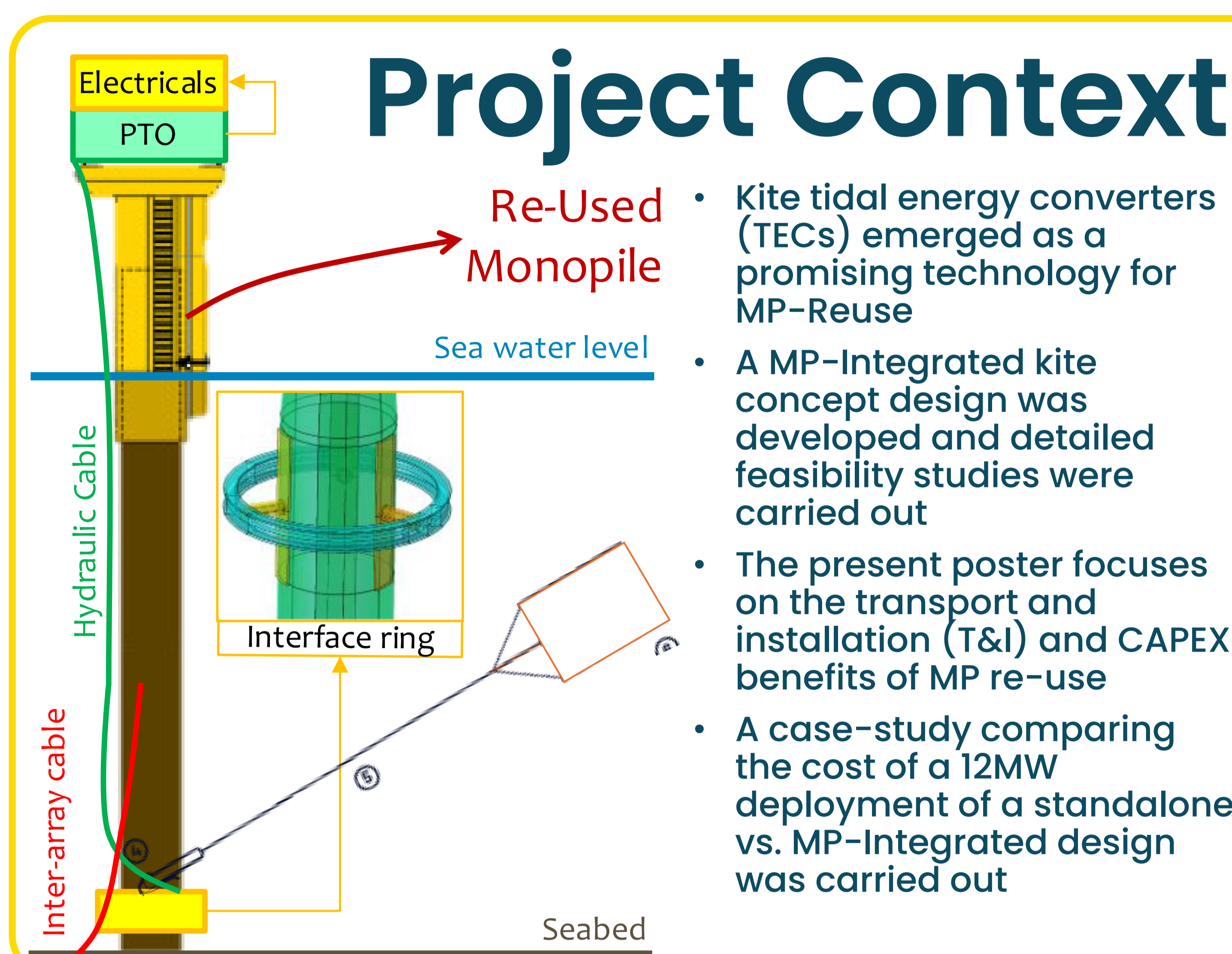
Re-use scenarios for existing offshore monopiles infrastructure: Cost benefits of repurposing offshore wind infrastructure for tidal energy

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Intro

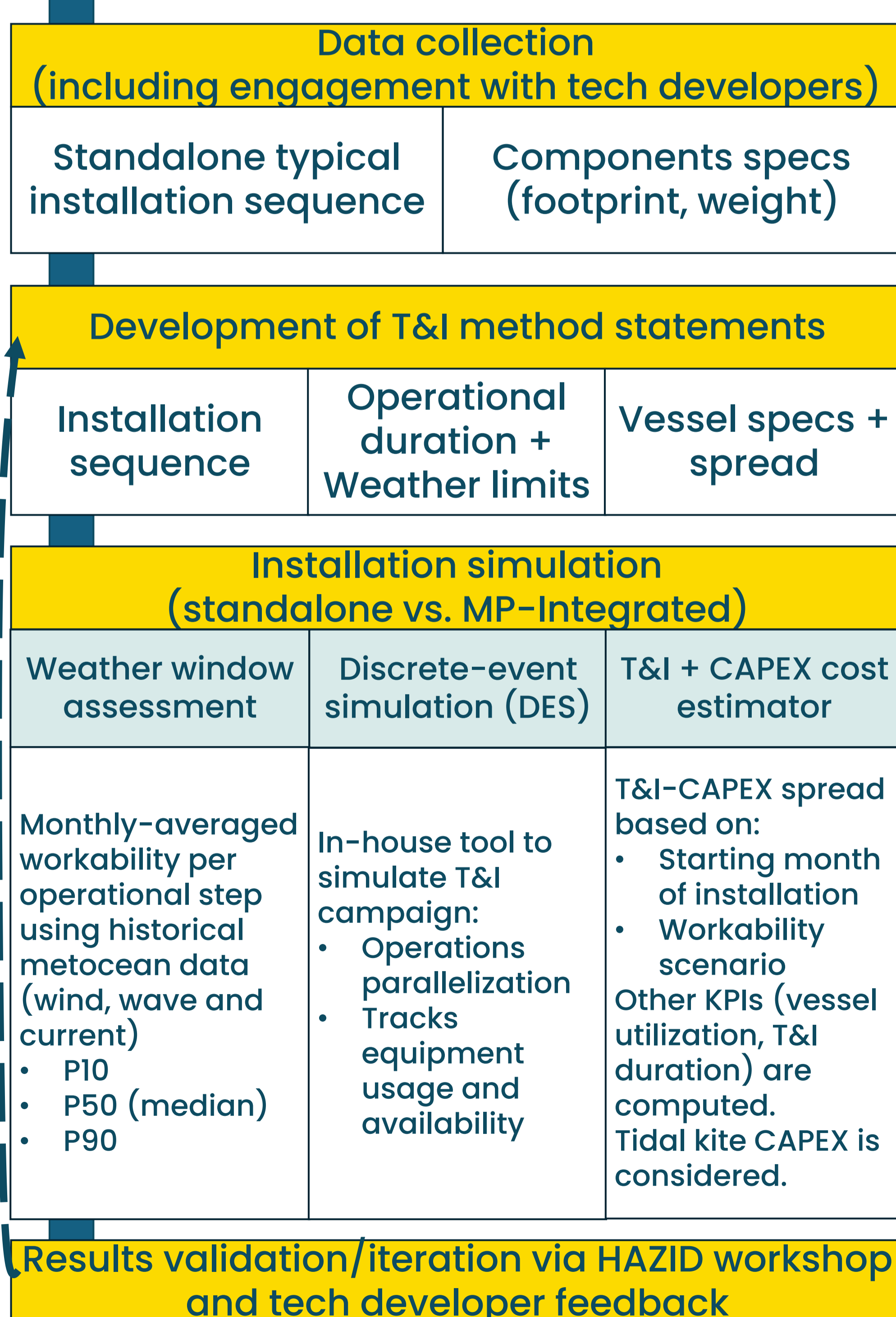
- Most offshore wind farms in the North Sea rely on monopile (MP) foundations. Some are nearing end-of-life.
- More than 1 Gwis are expected to be decommissioned in the next decade.
- Two alternatives are typically considered by governments and project developers – decommissioning or repowering
- What about repurposing?



Component	Re-purpose potential
Monopile	High
Inter-array cables	High
Export cable + Substation	High
Wind turbine converter + Low voltage Switchgear	Low
LV-MV Transformer	Medium-High
I-tubes	Medium
SCADA/data cables	Unclear

- Kite tidal energy converters (TECs) emerged as a promising technology for MP-Reuse
- A MP-Integrated kite concept design was developed and detailed feasibility studies were carried out
- The present poster focuses on the transport and installation (T&I) and CAPEX benefits of MP re-use
- A case-study comparing the cost of a 12MW deployment of a standalone vs. MP-Integrated design was carried out

Methods



Overall Project assumptions

Case Study Parameters	Value
Offshore wind farm	Horns Rev II (decommissioning in 2029)
Port-site distance	30 km
Kite device rated capacity	0.5 MW
Installed capacity	12 MW
Nr. devices	24
Vessel spread	1 Construction Support Vessel (CSV) 1 Crew Transfer Vessel (CTV)

Installed components per scenario

Components	MP-Integrated	Standalone
TEC	Yes	Yes
Interface ring	Yes	No
DC-AC-DC Converter	Yes	Yes
Transformer	Yes	No
Switchgear	Yes	Yes
Foundation	No	Yes
Cabling	No	Yes

Results

