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# Marine Energy Developments and Associated Infrastructure: *Lessons Learnt from the UK*

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**MWH**

***BUILDING A BETTER WORLD***

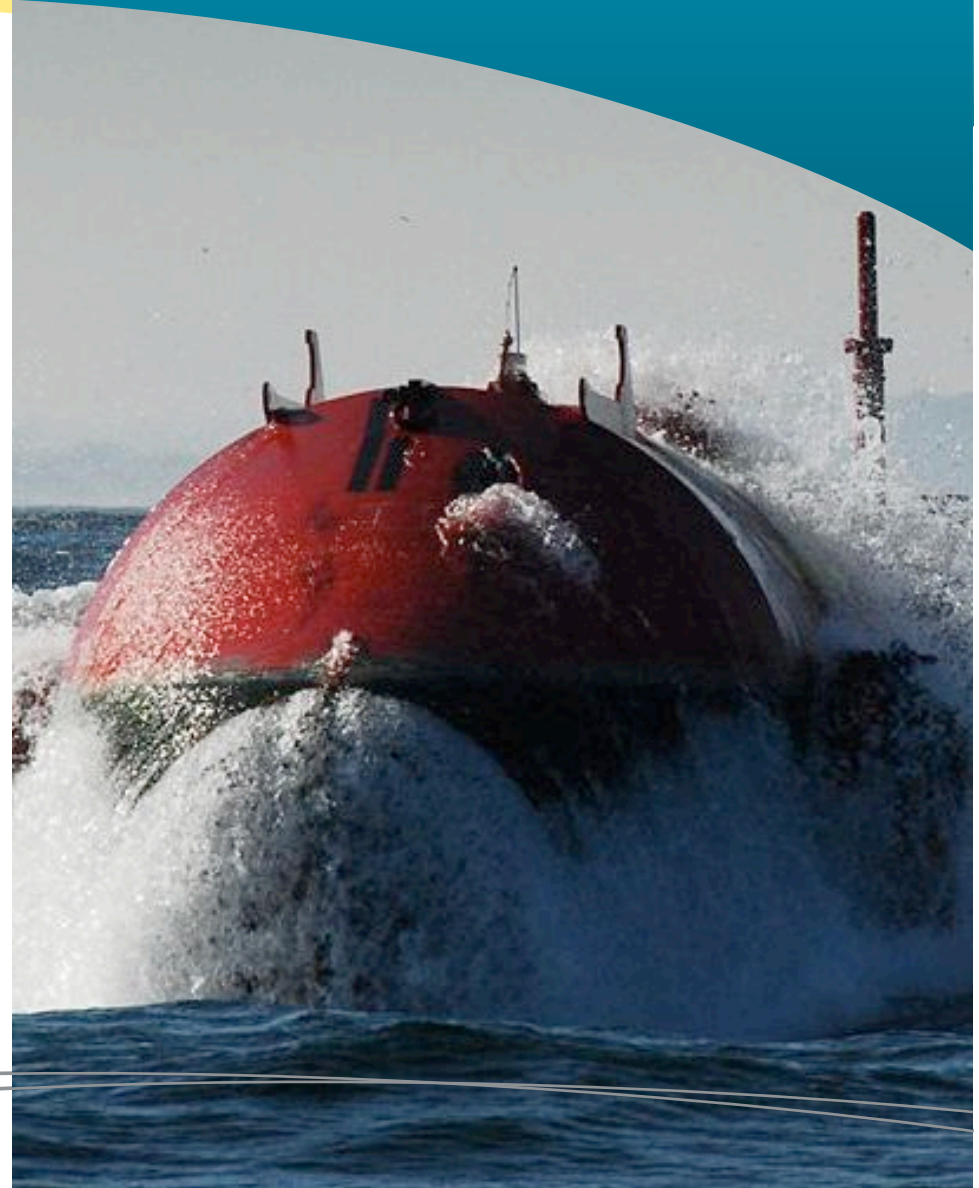
# *Introduction*

- Background – UK developments
- Developing a project
  - Site scoping
  - Project feasibility
  - Environmental studies/consenting
  - Design and procurement
  - Fabrication and installation
- Summary of key issues



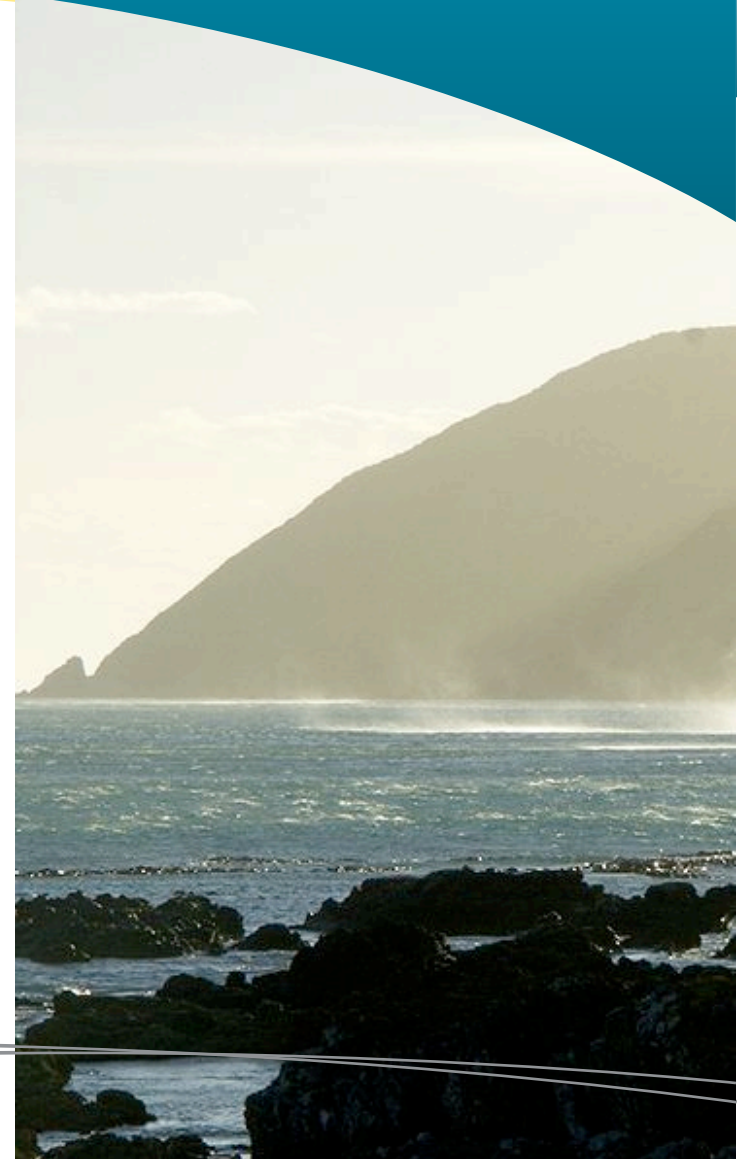
# *Background – developments in the UK*

- Key players
  - Public sector
  - Private sector
- Developments
  - NAREC
  - EMEC
  - Wave Hub
  - Pentland Firth
- Financial support



# *Site scoping*

- Identify potential location
  - Resource assessment
  - Identification of constraints
- Constraints/considerations
  - Physical
  - Technical
  - Environmental
  - Legislative
- Stakeholder Engagement Plan



# *Project feasibility*

- Technology selection
- Detailed assessments
  - Resource assessment
  - Offshore & onshore
  - Electrical connection
  - Site selection
- Environmental Scoping
  - Consent authorities





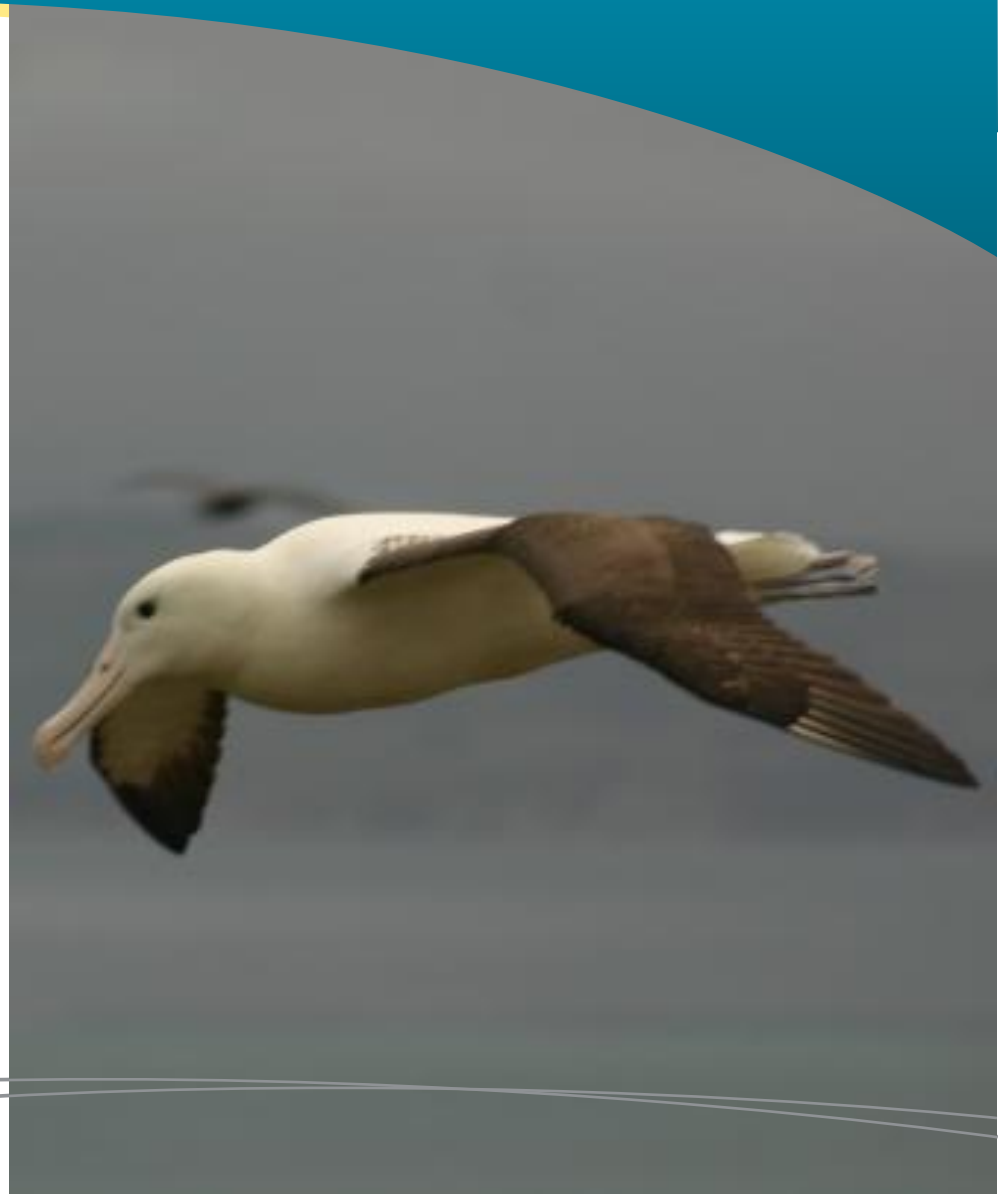
# *Project feasibility cont.*

- Conceptual design
  - Layout of devices
  - Cable route
  - Electrical design & connection
- Financial assessment
  - Energy yields
  - Costs
- Commercial aspects
- Consultation



# *Environment Considerations*

- Assessments
  - Baseline surveys
  - Prediction of impacts
  - Mitigation measures
- Environmental Issues
  - Marine ecology
  - Fishing
  - Coastal processes
  - Navigation



# *Consenting*

- Environmental assessment
  - Monitoring requirements
- Design development
- Consent application
- Consultation
- Conditions of consent
- Health and safety



# *Design & Procurement Strategy*

- Detailed Design
  - Electrical equipment & cables
  - SCADA, comms& control
  - Marine energy converter
- Procurement strategy
  - Contract management
  - Pricing strategy
  - Risk allocation
  - Timescales



# *Procurement, Fabrication & Installation*

- Procurement
  - Pre-qualification
  - Tender documents
- Fabrication
  - Contract management
  - Factory Acceptance
- Installation
  - Site supervision
  - Commissioning



# *Summary of key issues*

- Consultation
- Environmental monitoring
  - Appropriate surveys
  - On-going monitoring
  - Equipment choice
- Infrastructure costs
- Design iterations
- Procurement strategy
- Public sector support

