

Bridging the gap to commercialisation of wave energy technology using pre-commercial procurement



Market Consultation Webinar
26 April 2021



This project has received funding from the European Union's Horizon 2020 research and Innovation programme under grant agreement 883751.

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Programme

- **Welcome & Introduction** – *Donagh Cagney, Ocean Energy Europe (OEE)*
- **The Challenge** – *Olatz Ajuria, Basque Energy Agency (EVE)*
- **The Pre-Commercial Procurement (PCP) Process** –
Tim Hurst, Wave Energy Scotland (WES)
- **The EuropeWave PCP Process** – *Dr Ruairi MacIver, WES*
- **Questions?**
- **Conclusion & Next Steps** – *Donagh Cagney, OEE*





Bridging the gap to commercialisation of wave energy technology using pre-commercial procurement

Duration: 65 months (01/01/2021 to 31/05/2026)

PCP Budget: €19,600,000

Total Budget: €22,702,112

Programme: H2020-EU.3.3.2.
[Low-cost, low-carbon energy supply]

Topic: LC-SC3-JA-3-2019
[European Pre-Commercial Procurement Programme for Wave Energy Research & Development]



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Wave Energy Scotland (WES)

Ocean Energy Europe (OEE)

Ente Vasco de la Energía (EVE)

Buyers Group

Consortium Partner

EuropeWave Consortium



**A Scottish Government
funded initiative
to develop
wave energy technology**



**The Basque Government's
Energy Agency,
responsible for delivering
energy policy**



**The voice of the
ocean energy sector –
the sector's
industry association
in Europe**

The Challenge



Overarching Challenge

The design, development, and demonstration of cost-effective wave energy converter systems for electrical power production that can survive in the harsh and unpredictable ocean environment





EuropeWave PCP Challenge

To advance promising wave energy converter systems to a point from which they can be developed to commercial exploitation through other national/regional programmes and/or private sector investment.



EuropeWave PCP Challenge

This challenge may be expressed in terms of ...

Performance

obtain quantitative evidence of power capture and conversion capability and increase confidence in yield predictions from simulations

Survivability

demonstrate effective survival strategies

Availability

demonstrate levels of availability through reliable prototype operation

Affordability

increase confidence in estimations of technology costs (capital & operational) and determine the requirements to achieve a competitive LCOE



EuropeWave PCP

Functional Requirements

Design and deploy “whole-system” prototype that satisfies the requirements ...

General

- Extract energy from the available wave resource
- Produce an electrical power output
- Full-function sub-systems (PTO, control system, mooring / foundation, energy storage, etc.)
- Station-keeping for all-season deployment
- Maintain integrity in survival events (all-season) with autonomous restart of normal operation following survival event
- Appropriate for environmental conditions at the Biscay Marine Energy Platform (BiMEP) / European Marine Energy Centre (EMEC)



EuropeWave PCP Functional Requirements

Design and deploy “whole-system” prototypes that satisfy the requirements ...

Operation

- Safe and efficient installation and recovery
- Safe and efficient operation and maintenance
- Record key parameter data

Simulation

- Implement a digital twin of the whole-system prototype in its operational environment

Affordability

- System is affordable in its intended market



Pre-Commercial Procurement



Innovation Procurement

The public sector can use **innovation procurement** to drive innovation from the demand side.

Pre-Commercial Procurement (PCP)

The procurement of **research and development** of new innovative solutions for mid- to long-term public sector needs **before they are commercially available.**



Pre-commercial Procurement (PCP)

Four characteristics

**Public procurement of
R&D services**

**Competitive
development
in phases**

**Open,
transparent,
non-discriminatory
approach**

**Sharing of
IPR-related
risks and benefits
under market conditions**



Pre-commercial Procurement (PCP)

Public procurement of R&D services

Addresses a mid- to long-term public sector need for which no commercially stable solutions yet exist on the market, or existing solutions exhibit structural shortcomings

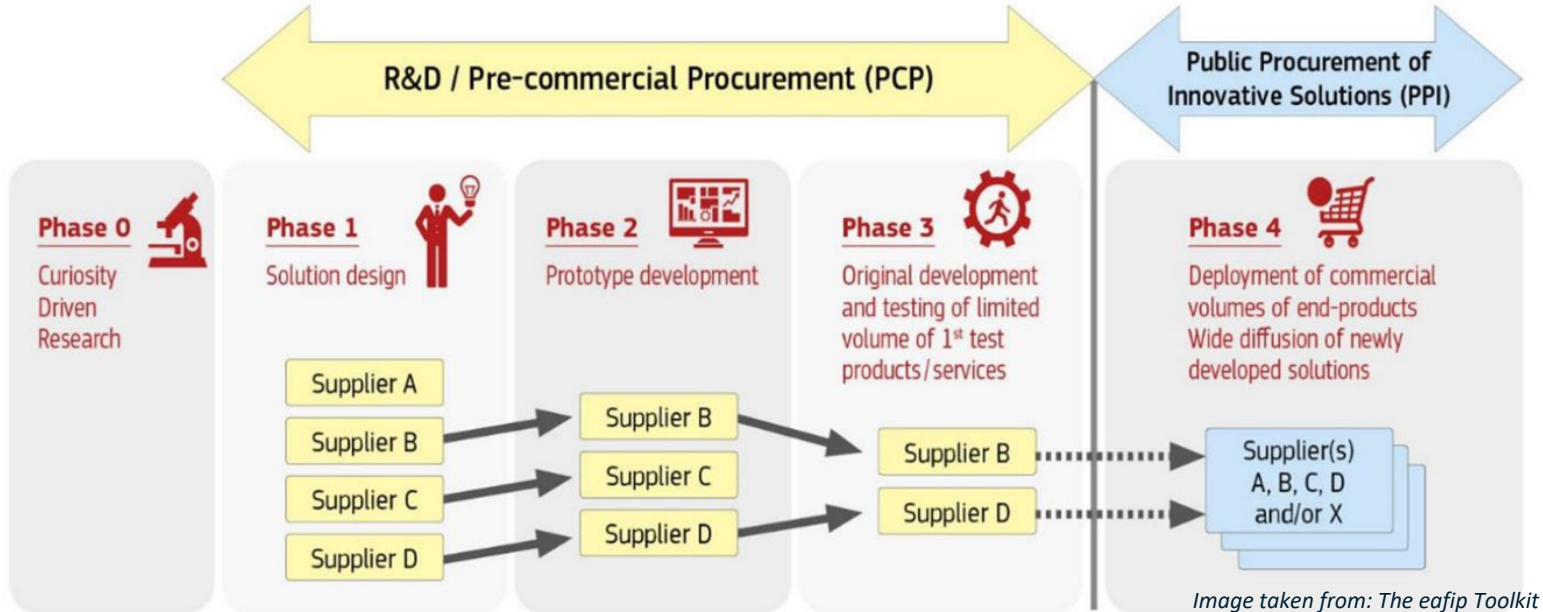
Triggers the market to develop solutions to these shortcomings

Focuses on specific identified needs



Pre-commercial Procurement (PCP)

Competitive development in phases



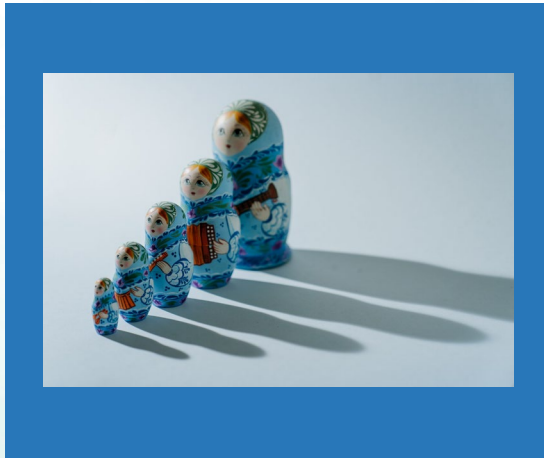
... identifies solutions that offer the best value for money

Pre-commercial Procurement (PCP)

Open, transparent, non-discriminatory approach

Open to all operators on equal terms, regardless of ...

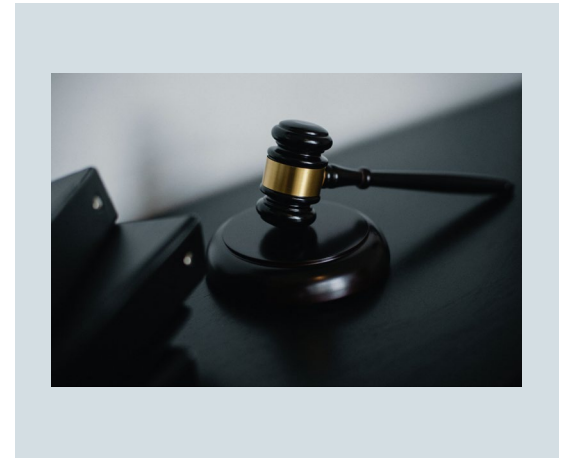
Size



Geographical location



Governance structure



Pre-commercial Procurement (PCP)

Procurers and suppliers share IPR-related risks and benefits under market conditions

- **Ownership of IPR** associated with R&D results generated during PCP contract is **retained by the contractor**
- **Obligation** for the contractor to **commercially exploit** the R&D results ... Ownership of IPR associated with R&D results passes to the procurers in the event of a failure to exploit
- **Procurers** receive **rights to use** the R&D results for internal use and licensing rights subject to certain conditions
- R&D services procured at the **market price**



Pre-commercial Procurement (PCP)

Procurement regulation exemptions

Exempted from the **EU public procurement directives**.

Procurers do not retain all the benefits of the R&D (the IPR ownership stays with the contractors).

Exempted from the **WTO Government Procurement Agreement (GPA)**.

The GPA does not cover R&D services.

Does not constitute state aid under the EU state aid rules.

It follows an open, transparent, competitive procedure with risk- and benefit-sharing at market price.



H2020 Pre-commercial Procurement (PCP) Actions

Additional requirements

Focus on Innovation

R&D services[†] represent
at least 50% of the
total contract value

[†] As defined in the EU R&D&I state aid framework

Tool to Foster EU Competitiveness

Principal R&D staff located,
and at least 50% of the total
value of activities performed,
in EU Member States and/or
Associated Countries to
Horizon 2020

Joint Procurement

Involving a group of
Procurers (Buyers)
governed by a
Joint Procurement
Agreement



H2020 Pre-commercial Procurement (PCP) Actions

IP ownership, access and licensing

Article 51(4), H2020 Rules for participation [Regulation 1290_2013]

Results (i.e. foreground)

The contractor generating results in the PCP shall **own the attached IPR**.

Contracting authorities shall enjoy at least

- **royalty-free access rights** to the results generated in the PCP for their own use
- the **right to grant**, or require the contractor to grant, **non-exclusive licences** to third parties to exploit the results **under fair and reasonable conditions** without any right to sub-license.

Failure to commercially exploit the results within a given period (**four years**) of the PCP ... the contractor shall **transfer ownership** of the results and the attached IPR **to the contracting authorities**.



H2020 Pre-commercial Procurement (PCP) Actions

IP ownership, access and licensing

Article 51(4), H2020 Rules for participation [Regulation 1290_2013]

Pre-existing rights (i.e. background)

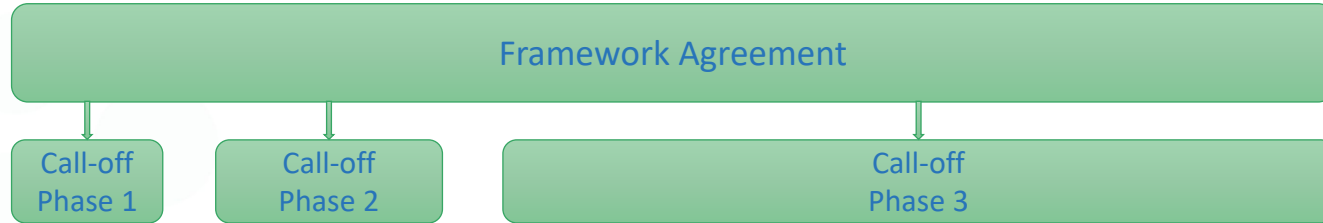
Ownership of pre-existing rights remains **unchanged**.

The contracting authority and the contractor must **maintain a definitive list** of respective pre-existing rights used in the contract.

Both parties shall have the **right to access** to each other's **pre-existing rights** for the **exploitation of results** generated in the PCP and for using the results for their own purposes, under **fair and reasonable conditions** and on a **non-exclusive basis**.



PCP Contract



Framework Agreement

binding for all PCP phases without renegotiation

Call-off contract

for each PCP phase ... subject to successful phase gate evaluation and contractor's offer for next phase

Lead Procurer is Wave Energy Scotland acting in the name and on behalf of the Buyers Group (WES & EVE)

The EU does not participate as a contracting authority in the procurement

EuropeWave PCP



EuropeWave PCP Phase 3

Open-sea deployment & testing programme

Objectives

Advance the design of **three** wave energy converter technologies **validated by open-sea trials** of **scaled whole-system prototypes**.

Readiness to proceed to first of a kind commercial-scale design and testing.

Requirements

Design finalization and fabrication

Open-sea deployment at either

- Biscay Marine Energy Platform (BiMEP)
- European Marine Energy Centre (EMEC)

Use open-sea deployment to assess

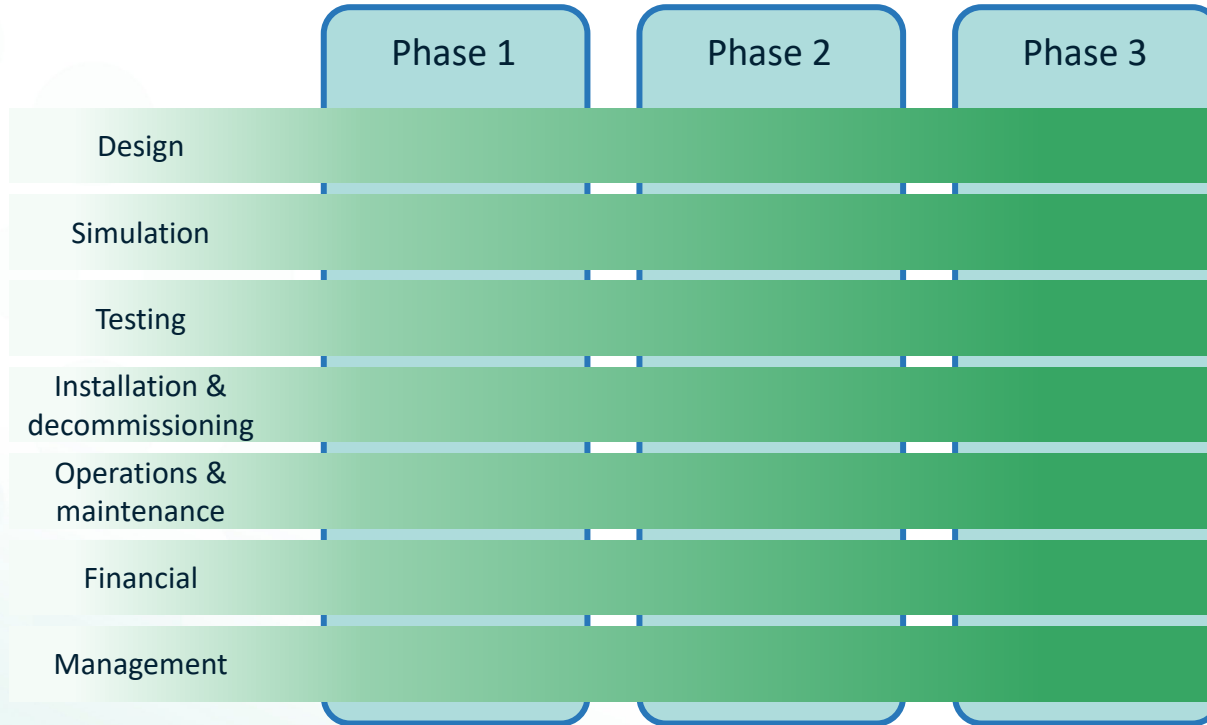
- performance and reliability metrics
- installation and operation processes
- survival strategies

Validate system simulations

Refine financial estimates and projections for market entry with a commercial-scale device



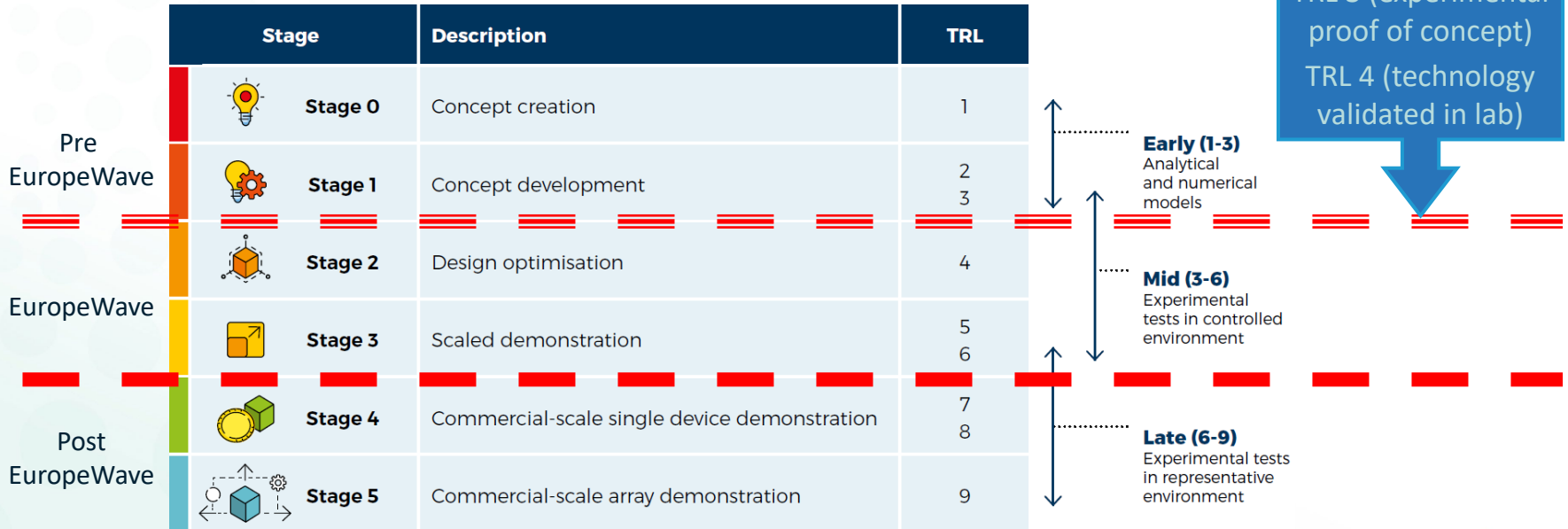
EuropeWave PCP



EuropeWave PCP

Entry requirements (anticipated)

Technology able to demonstrate a minimum state of development



EuropeWave PCP

Entry requirements (anticipated)

Linked to
IEA Framework
Stage 1

Design	Basis of design (whole-system)	Structural loads	FMEA	Principal system aspects characterised (inc sub-systems)
	Sub-systems	Survival strategy		
	Simulation	Hydrodynamic performance	Structural calculations	
Testing	Small-scale model tests			
Installation & decommissioning	High-level planning			
Operations & maintenance	High-level planning			
Financial	System breakdown cost estimates	LCOE projections		
Management	Capabilities of contractor (sole or consortium [group]) and sub-contractors (where used)			



EuropeWave PCP Phase 1

Concept development

Objective

Optimise concept engineering design for the EuropeWave requirements

Benchmark performance

Design	Basis of design ... initialized for EuropeWave	Design for performance, installability, maintainability, survivability, affordability	
	Engage sub-system suppliers (PTO, mooring, control, etc.)	Structural loads Survival strategy	Develop / refine FMEA
Simulation	Performance [hydrodynamic, power conversion]		
	Subsystem [PTO, mooring, etc.]	Structural [operation, survival]	
Testing	Scale model tests ... performance in prescribed sea-states		
Installation & decommissioning	Initial storyboarding		
Operations & maintenance	Maintenance characteristics ... initialized for EuropeWave		
Financial	Refine system & sub-system cost breakdown	Develop financial model	LCOE projections [scenarios]
Management	Qualification plan	Design reviews (PDR)	Reporting



EuropeWave PCP Phase 2

Design / modelling

Objective

Advance designs to a "well-developed FEED" standard

Improve fidelity of simulation and financial modelling

Preliminary planning for deployment

Design	<ul style="list-style-type: none"> Basis of design Survival strategy Structural loads 	<ul style="list-style-type: none"> Design for performance, installability, maintainability, survivability, affordability Sub-system (PTO, mooring, control, etc.) Refine FMEA
Simulation	<ul style="list-style-type: none"> Performance [hydrodynamic, power conversion] Subsystem [PTO, mooring, etc.] 	<ul style="list-style-type: none"> Structural [operation, survival]
Testing	<ul style="list-style-type: none"> Scale model tests ... performance, survival 	<ul style="list-style-type: none"> Sub-system & component ... life & reliability
Installation & decommissioning	<ul style="list-style-type: none"> Develop I&D plan 	
Operations & maintenance	<ul style="list-style-type: none"> Develop O&M plan 	
Financial	<ul style="list-style-type: none"> Refine system & sub-system cost breakdown 	<ul style="list-style-type: none"> Refine financial model LCOE projections [scenarios]
Management	<ul style="list-style-type: none"> Qualification plan 	<ul style="list-style-type: none"> Design reviews (CDR; third party) Reporting



EuropeWave PCP Phase 3

Open-sea deployment & testing programme

Objective

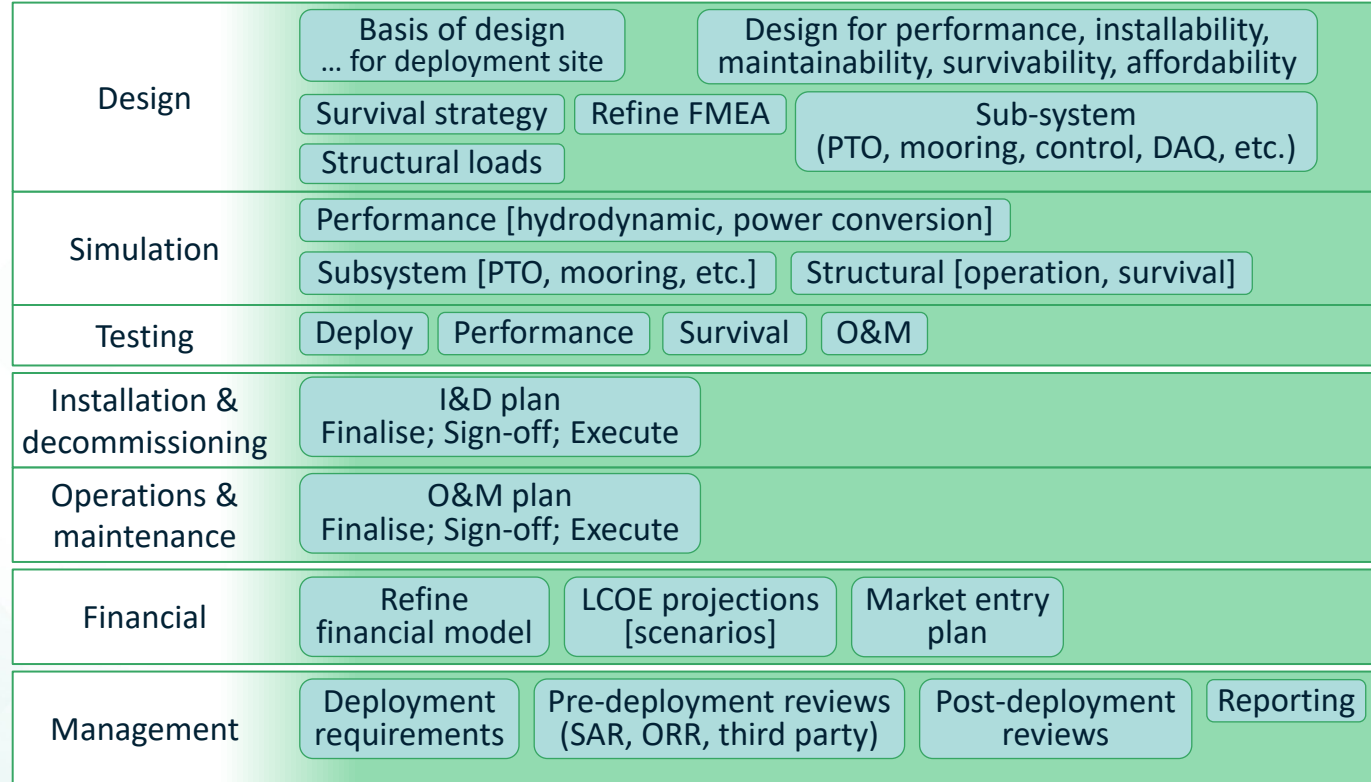
Design finalization and fabrication of scaled prototype

Deploy and operate

Assess metrics, processes and strategies

Validate simulations

Refine financial planning



EuropeWave PCP

PCP budget: **€19,600,000 (inc VAT[†])**

Duration: 52 months

Phase 1 Concept development

Proposed

Phase budget:
€2,100,000 (inc VAT[†])

Call-off contracts: 7

Contract budget:
up to €300,000 (inc VAT[†])

Duration: 6 months

Phase 2 Design / modelling

Proposed

Phase budget:
€4,000,000 (inc VAT[†])

Call-off contracts: 5

Contract budget:
up to €800,000 (inc VAT[†])

Duration: 9 months

Phase 3 Open-sea deployment & testing programme

Proposed

Phase budget:
€13,500,000 (inc VAT[†])

Call-off contracts: 3

Contract budget:
up to €4,500,000 (inc VAT[†])

Duration: 33 months

[†] the applicable VAT rate is that in the country of the Lead Procurer



EuropeWave PCP

Procurement

PIN published	1 March 2021
Market consultation webinar	26 April 2021
Request for Tender published	21 June 2021
Tender period	21 June – 17 Sept 2021 (13 weeks)
Tender submission deadline	17 Sept 2021
Tender evaluation period	20 Sept – 19 Nov 2021 (9 weeks)
Contract award notification	19 Nov 2021
Framework Agreement & Phase 1 contract signed	14 Jan 2022
Phase 1 contract start	31 Jan 2022



EuropeWave PCP

Procurement

This procurement is being **managed through** the public procurement portal of Scotland, **Public Contracts Scotland** (PCS).

www.publiccontractsscotland.gov.uk

Announcements are being published in the Official Journal of the European Union (OJEU), through the public procurement portal of the Basque Country and Spain, on the EuropeWave website.

www.europewave.eu



A **Prior Information Notice** (PIN) of this procurement has been published on PCS with reference number **FEB408104**.

Parties **registering an interest** in the PIN **on PCS** will receive **automatic notification** of all **future correspondence** relating to this procurement.



EuropeWave PCP Questions



EuropeWave PCP

Questions

An anonymized summary of the questions and answers raised at the webinar will be published through the Public Contract Scotland (PCS) portal

www.publiccontractsscotland.gov.uk

and on the EuropeWave website

www.europewave.eu

Further queries may be submitted through the PIN's Q&A facility on the PCS portal for a period of 7 calendar days following the webinar.



Wrap up



Key Dates

3 MAY – Deadline for queries

JUNE – Call for tender opens

SEPTEMBER – Call for tender closes

Exact dates will be communicated in advance



Don't Forget!

Respond to the follow-up questionnaire

Register interest on the PCS –
www.publiccontractsscotland.gov.uk

PCS reference: **FEB408104**

*Slides + webinar recording
will be available on PCS and
the EuropeWave website*

*More questions?
Submit on the PCS Q&A facility*



Don't Forget!

Consortia win tenders –
NOT individual organisations ...

Start thinking about your consortium

*What partners are needed for the
whole PCP process?*

EuropeWave online brokerage platform –
coming soon ... stay tuned!





EUROPEWAVE

Thank you!



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