



Request for Information

Unmanned inspection technology

For the development of Pennavel project

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Revision 1

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N°	Description	Main changes	Main author	Review	Approved	Issue date
0	Draft		CVH			
1	First issue		CVH	CPE	CPE	1/04/2026
2						

1 Introduction

In the context of the AO5 “Bretagne Sud” tender, the Elicio – BayWa r.e. consortium has formed PENNAVEL SAS (the “Client”) which has been awarded and is now developing an offshore floating wind project, named Pennavel (the “Project”). Since then, QEnergy has also entered into the project and all 3 parties own an equal share in the project company Pennavel.

This Project consists in the development, construction and operation of a 230 to 270 MW floating offshore wind farm off the coast of Belle-Île-en-Mer and Groix islands in southern Brittany.

The project is expected to be the first commercial scale floating wind farm and will be a pioneering project in many aspects. It is a world-leading prestigious project and the Consortium is honored to have been given the chance to develop it and will seek to work in this pioneering spirit with all involved.

The Project will be developed within the “zone d’appel d’offre pour le parc de 250MW” offshore Lorient, located approximately 30 km South of the Groix and 20 km West of Belle-Île-en-Mer Islands.

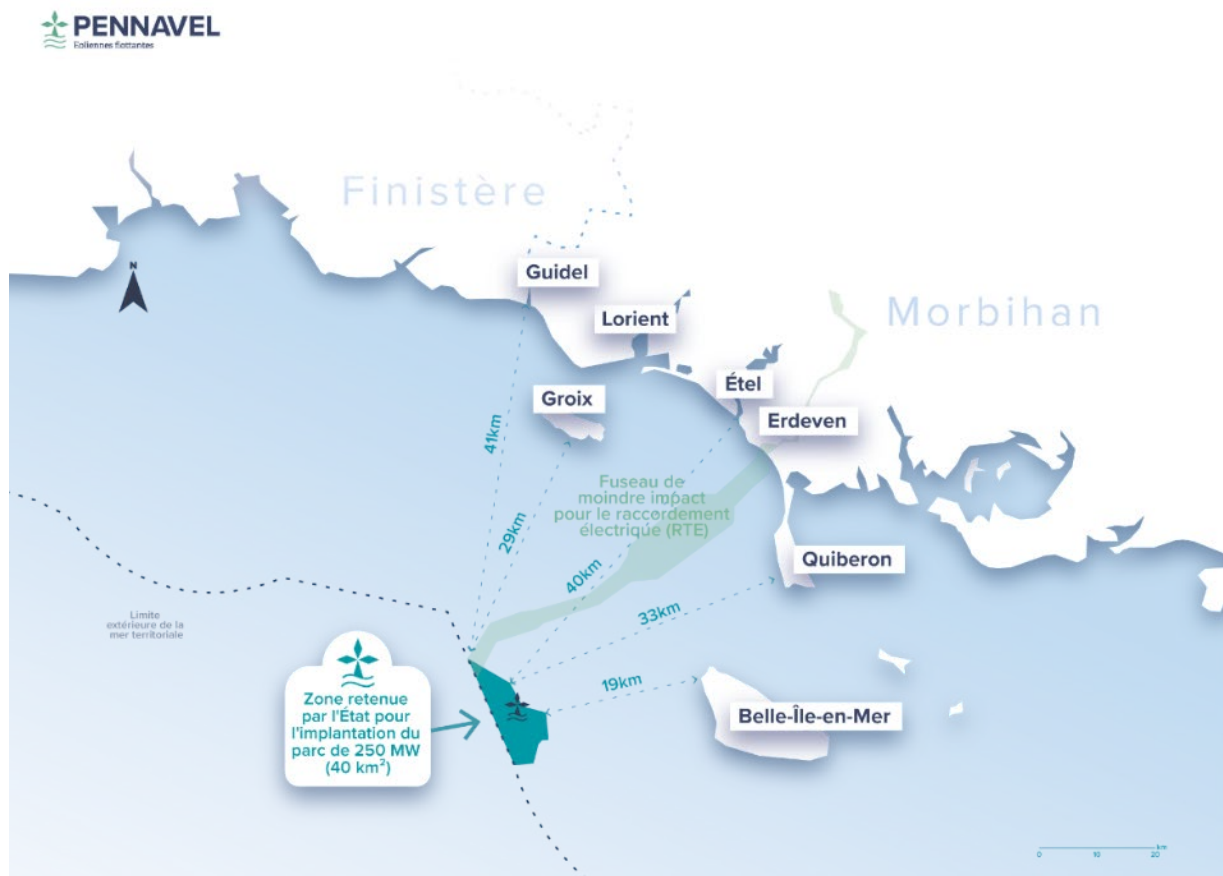
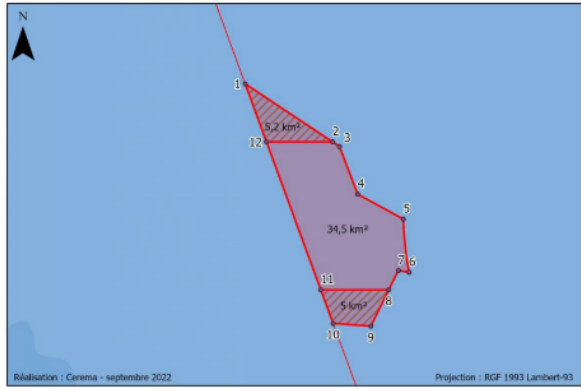


Figure 1: General overview of the project location

The coordinates of the zone are indicated in the table below:



■ Zone d'implantation du parc relatif à la procédure de mise en concurrence avec dialogue concurrentiel n°1/2021
▨ Zones dont la non-valorisation (pour une seule des deux zones uniquement, au choix du Candidat) entraîne un gain de points conformément aux dispositions du Cahier des charges

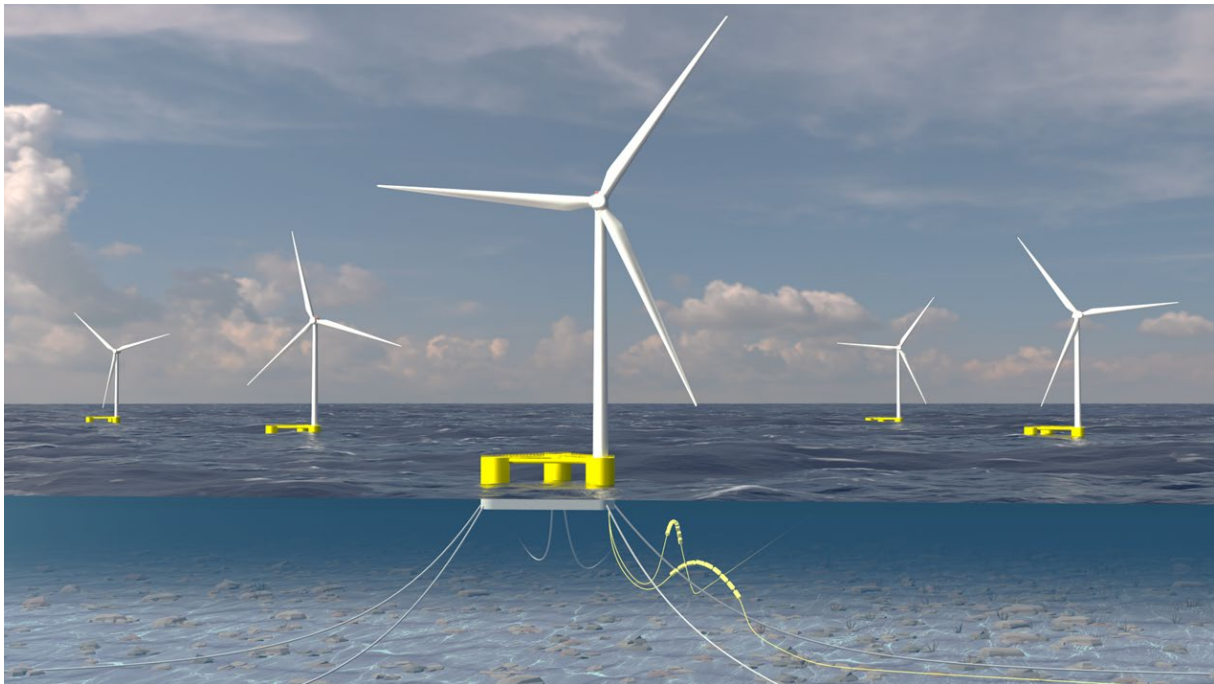
Zone d'implantation

id	Latitude	Longitude
1	47° 23' 21.88756876" N	3° 37' 48.86526585" W
2	47° 21' 56.59909671" N	3° 34' 00.20883256" W
3	47° 21' 49.82116148" N	3° 33' 42.08194440" W
4	47° 20' 32.08016110" N	3° 32' 47.10609357" W
5	47° 19' 56.46469288" N	3° 30' 48.78523973" W
6	47° 18' 27.80258627" N	3° 30' 23.91167428" W
7	47° 18' 29.28279151" N	3° 30' 50.83801879" W
8	47° 17' 55.45192528" N	3° 31' 10.54674100" W
9	47° 16' 51.82722926" N	3° 31' 47.60941179" W
10	47° 16' 51.24969265" N	3° 33' 21.34323653" W
11	47° 17' 45.95217805" N	3° 33' 58.73164866" W
12	47° 21' 47.29239792" N	3° 36' 43.97089426" W

The key project parameters are summarized in the table below:

Table 1: coordinates of the project zone

Installed capacity	230-270MW
Number of units	11-13
Water depth	-72.5m to -92.5m
Wind resource at 160m MSL	9.10 m/s



2 Scope and purpose of the document

This document structures Pennavel's request for information on unmanned inspection technologies.

Unmanned in this case means both remote controlled (from land, vessel or easily accessible location on the floater) and autonomous.

At the time of writing Pennavel is in the early stages of defining the project's requirements for various components (like floaters, and SKS) and part of those requirements are influenced by the capability of and the need for inspections.

Pennavel observes the fast growth both in unmanned acquisition techniques and in the data processing and reporting, and the opportunity this brings for unmanned inspections. It is therefore required for Pennavel to update our understanding of the technical capabilities today and in the near future, so that this can be accounted for in our design to improve safety by maximizing unmanned inspections. This impacts 3 aspects:

1. the design must be able to accommodate such techniques (e.g. ensuring hatches are accessible by drones)
2. it may influence our view on the need for redundancy in case there is a clear capability to detect failure early.
3. It may influence the needs for permanent structures related to personnel access, such as railings, stairs, etc.

Prospective service providers are requested to inform Pennavel about the state of the art today, as well as what may reasonably be expected in 5 years on their field of expertise, applied to floating offshore wind.

There will be several years between this RFI and the execution of the project. Therefore we also ask for your view on the evolution in the coming years.

3 Request for Information: scope and deliverables

3.1 Scope

Service providers are requested to provide information on their field of expertise, i.e. one or more of the lots below.

It is noted that the floaters may be made of steel, concrete, or a combination of both.

Below, the distinction is made between monitoring and inspection. Monitoring is understood as continuous, sensor-base data capturing, whereas inspection is understood as a data capture or measurement on a specific moment and location.

Table 2: Categorisation of the inspection scope – non-limitative list

	Required information	Parameters to be monitored, indicative	Purpose of inspection
1.	Above water continuous monitoring	<ul style="list-style-type: none"> • Floater motions and accelerations • Floater absolute position and inclination • Stresses on steel components • Stress on concrete rebar and TP • Bolt stress for major bolts (>M64) • Security: CCTV, radar, AIS ... • Environmental impact 	<ul style="list-style-type: none"> • Structural health monitoring • input to performance analysis • design verification • indirect SKS and IAC monitoring • excursion monitoring – potentially linked to WTG controller • environmental impact monitoring
2.	Below water (or splash zone) continuous monitoring	<ul style="list-style-type: none"> • Mooring line tension • Fairlead angles • Cathodic potential of reinforced concrete • Cathodic potential of submerged steel parts • Stresses of highly stressed components • Security: hydrophones for vessel detection 	<ul style="list-style-type: none"> • SKS structural health monitoring • SKS accessories monitoring • Corrosion monitoring • Structural health monitoring
3.	IAC continuous monitoring	<ul style="list-style-type: none"> • Cable position • Cable stress (axial and bending) 	<ul style="list-style-type: none"> • IAC stress monitoring • Accessories health monitoring
4.	Environmental monitoring	<ul style="list-style-type: none"> • Fauna and flora • Air and water quality 	<ul style="list-style-type: none"> • Environmental monitoring
5.	Above water inspections	<ul style="list-style-type: none"> • General visual inspection of floater outside– this includes primary structure and extensive secondary structures • Void space inspection • Internal spaces inspection (e.g. pumphoom) • Steel thickness measurement 	<ul style="list-style-type: none"> • General purpose visual platform inspection • Coating inspection

6.	Below water inspections	<ul style="list-style-type: none"> • Bottom chain corrosion rate & visual inspection • Mooring line visual inspection (including marine growth cleaning as required) • Synthetic rope detailed inspection • IAC visual inspection (including marine growth cleaning as required) • Fairlead visual inspection • Cathodic protection stab measurements • Steel thickness measurements of all components in the water column • Pile anchor and padeye visual inspection 	<ul style="list-style-type: none"> • SKS health • Statutory inspections • IAC health • Corrosion and Cathodic protection • General purpose visual inspection
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Note on the use of WTG SCADA Data: Pennavel is aware that the use of Scada data from the WTGs may substitute some sensor data. However, for floating wind there are several uncertainties which may make the use of scada data impossible, commissioning sequence being one of them. Therefore by default the system(s) proposed shall be able to work independently from the WTG Scada.

3.2 Deliverables – Information Package

Prospective suppliers are requested to structure the deliverables as described in table

Table 3: RFI deliverables

#	deliverable	Minimum content	Max Page limit
1.	Company information	<p>General company information:</p> <ul style="list-style-type: none"> - Localisation of the company - Shareholder structure and names, presentation of the owners - Number of employees - Turnover over the past 3 years <p>Track record focusing on experience with floating offshore wind, bottom-fixed offshore wind, offshore O&G</p> <p>Accreditation or certification</p>	4
2.	Present capability	<p>For all lots within the field of expertise, please provide an overview of what is possible today (examples of measuring techniques), how the data is processed and what typical outputs are.</p> <p>For the typical examples, please also describe the accuracy that can be achieved.</p>	15
3.	Operational requirements	For inspections, please also include typical timelines and operational requirements, like vessel size, weather limits, power needs, recharging stations, ... etc.	2
4.	Risks and risk controls	Please describe the risks associated to the inspections and the risks controls. This is in particular of importance for all vehicles, who may lose control and damage themselves or other assets.	2
5.	Monitoring data processing and reporting	If applicable: please describe how the monitoring data is processed and reported, and how this can contribute to decision support. Please also indicate important interfaces, like for advanced numerical models coming from the design. How are alarm levels defined?	6
6.	Inspection data processing and reporting	<p>If applicable: please describe how the inspection data is processed and reported, and how this can contribute to decision support. Important topics are:</p> <p>Comparison with base line and previous inspections</p> <p>Classification of findings</p> <p>Repeatability</p> <p>Practicality of output, in supporting maintenance crews</p>	6
7.	Design recommendations	<p>Please specify any requirement your scope has for floater design or outfitting. For example:</p> <ul style="list-style-type: none"> • Need for electricity, HVAC, heavy lift, ... • Min size of manholes and access arrangements 	2

		<ul style="list-style-type: none"> • Weather conditions • Network or internet connection requirements • Geometries to be avoided • Beacons, marker, ... • Need for specific design output 	
8.	Future outlook	For all lots within your field of expertise, please describe what evolutions you foresee in the 5 years to come and how this could affect potential monitoring and inspections on Pennavel. When do you expect resident drones or robots to become viable, and for what scope?	5

Service providers are requested to be **concise and to the point**. Please do not add documents of marginal interest.

4 Process and timeline

4.1 Communication and Q&A

Responses to this RFI shall be sent via email to

- cedric.vandehaute@pennavel.fr
- raphael.delarue@pennavel.fr
- Quentin.guyet@pennavel.fr
- Etienne.tabourel@pennavel.fr

Bilateral meetings between the Client and the Candidates may be scheduled to allow for Q&A and clarification. Such meeting could also be used by the Client to issue RFI bulletins in case any update to the RFI documentation is required.

4.2 Structure of the RFI

This RFI consists of the following documents:

RFI floater technology (this document)
Annex 1: Typical floater information - indicative

4.3 Timeline

The table below explains the timeline of the process.

Round 1 (this round)	
Starting point:	Long list of Candidates, this RFI
Objective:	Pennavel intends to obtain an up-to-date market view on what monitoring and inspections techniques are available today and in the near future to make sure this is adequately considered in the design.
Means:	This RFI process
Timeline:	3/04/2026: RFI issues
	04/05/2026 RFI Information Package submitted to Pennavel
Future rounds are not scheduled yet.	

Table 4: Major process milestones

4.4 Costs for RFI

The Candidate shall bear all costs or expenses incurred in the preparation of the RFI, the Information Package and all related activities.

The Client will not be responsible, in any case, for any costs or expenses incurred by the Candidate in connection with this RFI, and with any next steps of the tendering process.

Neither the Client, nor its shareholders or Affiliates, can be held liable whatsoever, and consequently the Candidate will have no claim for any redress, if the Client, for any reason whatsoever, cancels this RFI prematurely, modifies the procedure or the conditions, or decides not to proceed to round 2.

4.5 Examination of Request for RFI Documents

The documents, drawings and specifications enclosed are for information purposes only and may be used to assist the Candidate in preparing its Information Package. All use of data is at The Candidate's sole risk and the Client will under no circumstances accept any responsibility whatsoever for their correctness and content.

The Candidate shall be responsible for examining all the documents submitted by the Client, including documents issued by the Client in a later stage (if any).

The Candidate shall promptly notify the Client, and no later than two weeks after receipt by the Candidate of this RFI and the documents referenced herein, of any contradiction, mistake or obscurity and/or omission in these documents. Failure to do so shall be at the sole risk of the Candidate. Any clarification subsequently provided by the Client will be made in writing.

It is Candidate's responsibility to have in his possession, or to have otherwise access to all applicable international and local codes and standards, statutory requirements, local legislation, including but not limited to tax and social security regulations, and the like, applicable to the preparation of its Information Package and for the execution of the Project.

4.6 Intellectual Property of the RFI Documentation and Information Package

Unless otherwise agreed in writing, all intellectual property rights in all documentation exchanged between Parties shall remain vested in the owner of such documentation and there shall be no transfer of ownership of such proprietary material. However, Parties shall grant each other appropriate right to use relevant documentation for the purpose of the Information Package.

The Candidate shall save, indemnify, defend and hold harmless the other Party and its Affiliates from all claims, losses, damages, costs (including legal costs), expenses and liabilities of every kind and nature for, or arising out of, any alleged infringement of any patent or proprietary or protected right arising out of or in connection with the RFI process and the Information Package.

4.7 Confidentiality of the RFI Documentation and Information Package

The Candidate shall, at all times, keep the RFI Documentation confidential. These documents shall only be used by the Candidate for the purpose of preparing an Information Package for the Project and shall not be passed on to third parties, except to the extent necessary to prepare the Information Package. Third parties consulted for this purpose shall be advised by the Candidate of the confidential nature of these documents and shall be bound by it.

Likewise, the Client shall, at all times, keep the Information Package confidential. These documents shall only be used by the Client for the purpose of assessing the most suitable floater system for the Project, and shall not be passed on to the third parties, except to the extent necessary to select the most suitable floater system. Third parties consulted for this purpose shall be advised by the Client of the confidential nature of these documents and shall be bound by it.

Any data or information provided to the Candidate by the Client shall upon the Client's request either be returned to the Client or be destroyed or deleted unless the Employer has agreed to the retention of the data or information and only for any period of retention so agreed.

4.8 Candidate's Acceptance and Decline of the RFI

The Candidate is requested to immediately upon receipt of the RFI Documentation send to the contact person named in Section 5.1 an acknowledgement by e-mail confirming receipt of the complete RFI Documentation. Furthermore, the Candidate will indicate correspondence (including email address) details for further communication purposes during this RFI procedure.

By confirming their intention to submit an Information Package, the Candidate expressly confirms its acceptance of the procedures and terms of this RFI.

4.9 Amendments to the RFI

The Client, has the right to cancel this RFI prematurely, modify the procedure or the conditions, or decide not to proceed to round 2 or 3.

The Client has the right at his sole discretion to issue amendments to the RFI by way of sending of updates at any time. Any such amendments will be issued to all participating Candidates and will as far as possible take due consideration of the remaining period of the RFI. Such updates issued by the Client will be sequentially numbered and the Candidate is required to list these updates in its Information Package to confirm that the provisions of each amendment have been taken into account.

During the RFI process or round 2 or round 3, the Candidate may be reasonably required to provide additional KYC-information and accept codes of conduct, detailing further terms and conditions on business ethics, anti-fraud, sustainability, trade control, anti-slavery, cybersecurity, etc.

5 Definitions and acronyms

Affiliate	means a party, any company or other legal entity that is, directly or indirectly, controlled by such party; or that, directly or indirectly, controls such party; or that is, directly or indirectly, controlled by another company or legal entity that also, directly or indirectly controls such party. For the purposes of this definition, "control" means the right to exercise or cause the exercise of the vote of more than fifty percent (50%) of all the voting shares, equity or other ownership interest with voting rights in an entity.
Floater system	combination of floater, station keeping system, turbine and IAC cables
HVAC	Heating Ventilation and Air Conditioning
IAC	Inter Array Cables
Information Package	The package of information provided by the candidate to the Client
MSL	Mean Sea Level
O&G	Oil and Gas
Party	The Client and the Candidate
RFI documentation	the documents described in section 4.2
RFI	Request for Information: the procedure described in this document
SKS	Station Keeping system
T&I	Transport and Installation
WTG	Wind Turbine Generator

6 Annex 1: Typical floater information

The image below show typical points of interest. The final floater for Pennavel has not been selected yet; images below are strictly illustrative to show typical floater arrangements. **These points of interest should be interpreted loosely: most of them are present on all floater types.**

Some typical parameters:

Draught: 15-20m

Freeboard: 4-10m

Inclinations during workable conditions: approx. 5°

Inclination during extreme conditions: approx. 12°

