



**Market consultation in relation
to data acquisition of offshore
vertical temperature and
humidity profiles**

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Definitions

Interested party	The interested entrepreneur or organization participating in this market consultation.
Market consultation	The client wants to exchange information and knowledge with interested parties from the market.
Question and answer report	A document in which the questions asked by interested parties are recorded anonymously, including the answers given by the client.

1 Netherlands Enterprise Agency

The Netherlands Enterprise Agency (in Dutch Rijksdienst voor Ondernemend Nederland, hereinafter RVO) supports entrepreneurs, NGOs, knowledge institutions and organizations in the field of sustainable, agricultural, innovative, international business and sustainable energy. We strive to facilitate entrepreneurship, improve collaborations, strengthen positions and help realize national and international ambitions with financing, networks, expertise and compliance with laws and regulations.

RVO is a government agency that operates under the responsibility of the Ministry of Economic Affairs. Our activities are carried out on behalf of various Dutch ministries and the European Union.

More information on RVO can be found on the website [Netherlands Enterprise Agency \(rvo.nl\)](https://rvo.nl).

1.1 Description of future assignment and objective of market consultation

With this market consultation, RVO wants to collect information which will help with specifying a likely upcoming European tender for a study on vertical temperature and humidity profiles, including an offshore measurement campaign.

2 Procedure market consultation

2.1 General

You are invited to provide the information requested in this document as completely as possible.

This market consultation is a separate process carried out before a formal tender procedure is held and is mutually non-binding, with full transparency and without any obligations. Through this market consultation, RVO offers interested parties the opportunity to share their insights into the market situation and technological solutions, allowing RVO to prepare an optimal tender to get the best proposals out of the market and that guarantees a level playing field.

This market consultation is not an invitation to tender, nor is it part of a pre-selection procedure. Companies that do not participate in the consultation will not be excluded from participation or have a disadvantage. Companies that do participate in the consultation will not be excluded or favoured in any way.

2.2 Communication and submitting answers to market consultation

RVO kindly requests that all communications regarding this procedure be made via Mark Kamminga at the email address: IUCEZteam1@RVO.nl

Time schedule

With regard to this market consultation, the following timetable applies:

date	action
July 22, 2024	Publication/dispatch of market consultation on TenderNed
August 30th, 2024	Deadline for submission of responses by market parties

RVO will inform you of any changes to the deadlines.

2.3 Questions about the market consultation

You can ask substantive questions about the procedure of the market consultation to the contact person by e-mail as mentioned in section 2.2. All questions, including the corresponding answers, will be answered anonymously by e-mail only to the participant who asked the question.

2.4 Results of the market consultation

RVO intends to use the information collected as a result of this market consultation when drawing up a Tender. Interested parties should note that information they provide in the context of this market consultation may be made public in anonymized form so that the information is not traceable to a specific interested party. Specifically, the results from the Market consultation will be summarised in a future tender and may be implemented in this Tender.

RVO wants to be able to use the information provided by interested parties without reservations. For this reason, RVO will not honour any claims/reservations from interested parties regarding the use of information or confidentiality. By submitting the answers to this market consultation you agree to this.

In any future tender which follows from this market consultation, no distinction will be made between parties that have or have not participated in the market consultation.

2.5 Legal relationship

This market consultation is without obligation for all parties (RVO and interested parties) and does not in any way imply an obligation to enter into a specific legal relationship with participants. No rights can be derived from participation in the market consultation or information provided during the market consultation.

3 The market consultation

Context

An ambitious target for offshore wind capacity has been set by the Dutch Government, 21 GW by around 2032. To achieve this target, seven designated wind farm zones (WFZs) are being developed in the Dutch North Sea.

The increasing number of offshore windfarms, more proximity between offshore windfarms and increasing size of the turbines has an impact on the remaining kinetic wind energy and recovery of the wind downstream of the wind farm, the so called wake. These wake characteristics in turn will influence the Annual Energy Yield (AEY) and Business case for the developer of the windfarm. In order to get a better understanding of the wake effects, many aspects can be analysed, e.g. turbine induced turbulence intensity, wake recovery, etc. However one important aspect of wake development effects, is the so called stability of the Atmospheric Boundary Layer (ABL). The either stable, unstable or neutral characteristic of the ABL can be derived by acquiring the vertical profile for the temperature and humidity. Besides deriving the ABL stability, more parameters can be computed from these atmospheric variables. This will enable wind farm developers to get a better understanding of the atmospheric behaviour and help predict the wind resources better to further decrease the uncertainty of the wind resource.

In order to measure the vertical temperature and humidity profile, it is proposed to integrate a microwave temperature & humidity profiler (MTHP) on a floating buoy system and to install a MTHP on an existing fixed platform for comparison. The objective of this market consultation is to collect feedback on the feasibility of a MTHP integrated on a floating buoy system. Also it aims to determine the optimal way to obtain the vertical temperature and humidity profiles.

In order to assess the feasibility of the integrated system the following scope of work outline can be reviewed. The scope of work consists of five work packages (WP), each with a stage gate :

Scope of work

1. WP I - System Design and Integration:
 - 1.1. Sensor selection and specification;
 - 1.2. System integration;
 - 1.3. Calibration plan;
 - 1.4. Campaign plan;

Deliverables:

 - D1.1: Sensor selection criteria and specification;
 - D1.2: System integration plan, power consumption plan, data QA and data pathway;
 - D1.3: Calibration plan, method, location and time;
 - D1.4: Campaign implementation plan, build time and execution plan;
 - D1.5: Campaign scientific plan, data interpretation, method of comparison, quality KPI's and campaign test program.

2. WP II - Instrument Calibration
 - 2.1. Onshore testing;
 - 2.2. Offshore condition testing;

Deliverables:

 - D2.1: Onshore testing plan and QHSE documents;
 - D2.2: Offshore testing phase and QHSE documents;
 - D2.3: Reporting onshore;
 - D2.4: Reporting offshore;
 - D2.5: All data (reference and instruments).
3. WP III – System build
 - 3.1. Buoy preparation;
 - 3.2. Platform preparation;
 - 3.3. Factory Acceptance Test;
 - 3.4. System design sign-off;

Deliverables:

 - D3.1: Buoy preparation report;
 - D3.2: Platform deployment preparation report;
 - D3.3: Factory acceptance test;
 - D3.4: System as built specification.
4. WP IV – Campaign implementation
 - 4.1. Harbour Acceptance test;
 - 4.2. Platform integration;
 - 4.3. Campaign start;
 - 4.4. Data QC.

Deliverables:

 - D4.1: HAT;
 - D4.2: Installation report – Buoy;
 - D4.3: Installation report – Platform;
 - D4.5: Data reporting platform;
 - D4.6: Monthly data reports;
 - D4.7: Project database.
5. WP V - Data interpretation and market preparation
 - 5.1: Scientific review of project;
 - 5.2: Campaign progress;
 - 5.3: market engagement preparation;

Deliverables:

 - D5.1: Scientific review paper;
 - D5.2: Campaign progress short form reporting;
 - D5.3: market engagement strategy;
 - D5.4: market engagement seminar;

Considering the aforementioned project goal and scope of works, RVO is looking for market information on integration of microwave profiles on buoys and the feasibility of acquiring data fit for purpose.

Questions:

RVO is requesting parties to respond in writing on the following questions:

- What issues do you foresee when integrating a microwave profiler onto a floating buoy system? For example issues related to, but not limited to, salinity, power consumption, data acquisition, sampling rate.
- Is the scope of work comprehensive, or is there something you would like to see included in the scope of work currently not presented?
- What do you foresee as realistic timeline per work package?
- Do you have any similar reference projects for acquiring temperature & humidity profiles?
- What use cases do you see for temperature and humidity data?

Your written response is a maximum of 5 pages. Also an incomplete response is possible.

If you have the answers ready earlier than the deadline, we would like to receive them earlier. The answers can be sent to Mark Kamminga via

IUCEZteam1@RVO.nl

Explanatory interview

Based on the parties' written responses, RVO may decide to invite these parties for an interview.

During these conversations, a number of specific parts of the answer will be discussed in more detail.

These interviews will be scheduled by RVO probably in the week of 16 September 2024 and take place via MS teams. RVO expects that these interviews do not last longer than an hour.

Market consultation results

Partly based on the results of the market consultation, RVO determines how the assignment will be progressed. A summary of the results from the market consultation will be added to the tender.

4 Information request

In addition to your answers to the questions in Chapter 3, RVO requests that you complete the information below as completely as possible.

Name interested party (supplier):	
Name contact person and function:	
Telephone number contact person:	
E-mail contact person:	
Visiting address:	