

Offshore Wind Innovators Challenge (OWIC)

2019 – edition 3

Competition Brief



Our Business partners are



••• Nederland Maritiem Land
••• High Tech, Hands On



By

Offshore Wind 
innovators 

CHALLENGE DESCRIPTIONS

OFFSHORE WIND INNOVATION CHALLENGE

CO₂ neutral shipping for offshore wind

Solve the challenge...



One of the elements in CO₂ emissions related to the offshore wind farms during the life cycle is shipping. This challenge aims to generate concepts for CO₂ neutral shipping for offshore wind in the area of the CTVs or SOVs.

Develop ideas for the development of these vessels that will be evaluated on CO₂ footprint, cost, addressable market and time to market.

...and grow your business

Offshore Wind innovators

TKI Wind op Zee
Regional Energy


TKI Maritiem
Nederland Maritiem Land

Mail to **Erwin Coolen**
e.coolen@innovatielink.nl
www.offshorewindinnovators.nl

OFFSHORE WIND INNOVATION CHALLENGE

Optimize pressure control to reduce noise emissions at sea

Solve the challenge...



To reduce noise emissions during offshore pile driving for wind turbine foundations, a noise mitigation system is combined with an air bubble screen. The stream of bubbles is sub-optimal, reducing the effect of the technique.

A re-design of the hose, nozzle, or compressor might lead to an increased control of the air bubbles and better performance overall.

...and grow your business

Offshore Wind innovators

Van Oord

Mail to **Erwin Coolen**
e.coolen@innovatielink.nl
www.offshorewindinnovators.nl

OFFSHORE WIND INNOVATION CHALLENGE

Design Sustainable Flat Oyster Racks

Solve the challenge...



To strengthen the nature surrounding windfarms and seed new reefs, racks with oyster baskets are placed on the bottom of the sea.

Design oyster racks that are made of corrosion resistant material, easy to install, locate and lift, and prevent the racks from being covered in sand.

...and grow your business

Offshore Wind innovators

NATUUR & MILIEU

Bischof De Noordzee

Mail to **Martin Weissmann**
m.weissmann@innovatielink.nl
www.offshorewindinnovators.nl

Your Innovation/ Solution proposition should be submitted

- Deadline: no later than 17:00 CET time on 17 of October 2019.
- A confirmation e-mail will inform you that your submission has been received. Participants may enter more than one innovation challenge. Each entry must be submitted on a separate application form at the website.

Timeline Innovation Challenge

Competition Opens: 26th of August

Application deadline: 17 October

Masterclass: 4 November

Bootcamp: 19 November

Technical Check: November

Winners announced during Offshore Wind Innovators Event: 9th December

Offshore Wind Innovators Challenge 2019 – Competition Background

To construct one of the largest infrastructural developments in Dutch history, the offshore wind industry has to make offshore wind even more affordable, reliable and sustainable. Accelerating technical innovation and implementing it into the offshore market, will give offshore wind a better position in the energy system, both in the Netherlands and internationally.

The Netherlands are known for their strong innovation skills and knowledge and experience in the wind and offshore industry but lacking their own innovation challenge; in which we aim to connect demand and supply from different sectors.

The Offshore Wind Innovators Challenge is established for the Dutch offshore wind market, the offshore wind Industry, students and start-ups from all over Europe. The Challenge aims to make offshore wind more affordable giving offshore wind the best position in the energy system for the Netherlands but also internationally.

This September the third edition of the Offshore Wind Innovation Challenge will kick off.

The goal of this challenge is to **accelerate applied innovations** in the offshore wind industry. The challenge has started with a call for companies to share their technical challenge. Challenges or problems faced during the development, installation, operations & maintenance or decommissioning phase.

From September till December during the challenge process, students, engineers, SME's and start-ups of the community are asked and supported to come up with innovative solutions ready to use within 3 till 4 months.

This challenge has been launched to support students, SME's and Start-Ups to support the innovation technologies that are requested by the key Business Partners of the offshore wind industry.

It is targeted at innovations with the aim to directly be ready for commercial implementation.

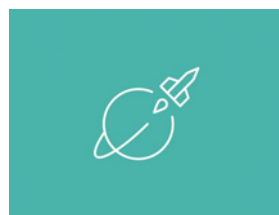
Prize: what's in it for the participants?

The winners will have access to the following:



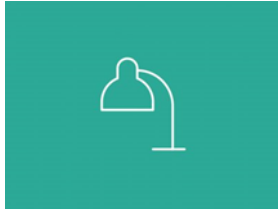
Coaching

Expert coaching and steering from the leading offshore wind Business Partners during Masterclass and Bootcamp. A successful introduction to the offshore wind market goes beyond the development of a technically perfect product or system.



Launching Customer

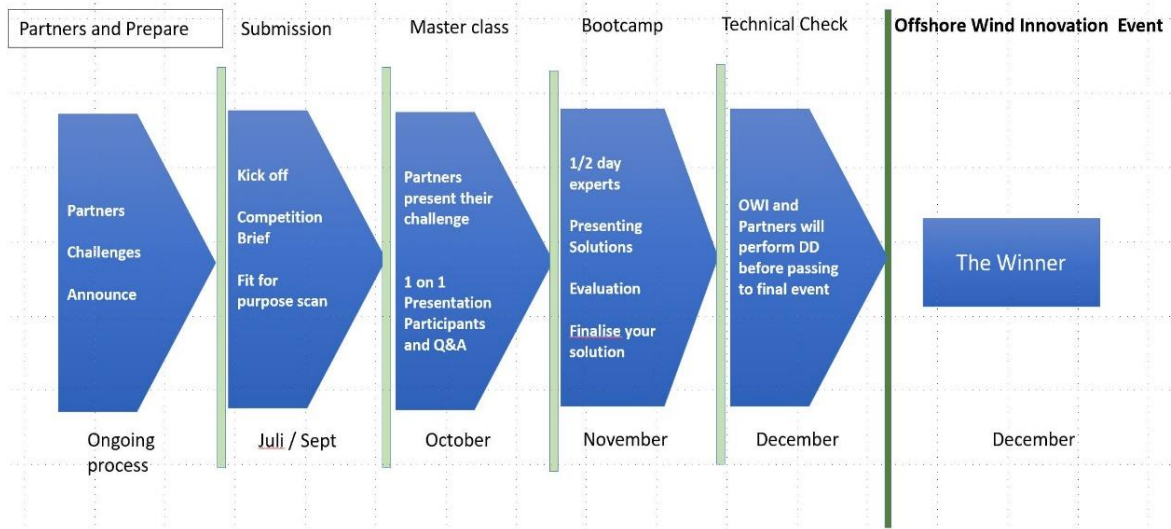
The offshore wind market is a relatively new and dynamic sector. Many companies active in this sector have their roots in other industries. Innovative companies that want to conquer a position in this market, need a clear picture of what they can expect. Possible access to Business Partner to demonstrate your innovation.



Publicity Support

Brand awareness and visibility are essential elements for a successful business. During the competition we will use our flexible and customized communications packages offering the participants access to media channels.

Challenge template – Q3 Q4



Challenge Set-Up

Preparation

The Offshore Wind Innovators business partners will be contacted and requested to present a challenge that needs an innovative solution before the 22th of August.

Submission of challenge

SME's and Start-Ups can hand in their proposals. There will be a fit for purpose scan by the organisation in order to pass for the masterclass. The proposals will be based on a fixed template including rules of the game. One important criteria to become part of the Masterclass: a design or prototype of an innovative product or idea that can be implemented within the 8 months – demonstration type available in December during the finals.

Masterclass

During the masterclass, the SME's or start-ups will present their specific challenge to Business partners. The participants will have the possibility to challenge the Business Partners by asking questions and to better understand the real question which needs to be solved.

Out of these presentations and pitches a maximum of 5 participants per topic will be selected by the Business Partner who addressed the specific topic.

Bootcamp

During bootcamp the selected participants will be supported by experts of the Business Partners and by independent experts facilitating a training program and workshops in innovation and out-of-the-

box solutions and how to present this on stage. At the end of this boot camp a maximum of 2 participants per topic will be selected after having pitched their idea to a jury.

Innovation Check

We ask for a product sheet, folder, or ppt presentation

This documentation need to contain:

- A complete summary of your proposed Innovation in PowerPoint (pitch)
- An executive summary of not more than one page should provide a comprehensive overview of your proposed Innovation.
- A description how did your company approach this innovation?
- Technical description/ drawing (optional)
- Commercial viability: market price, cost reduction for the offshore wind market, market impact?

On the basis of this documentation, your pitch as presentations during the last Bootcamp/ Masterclass we select the winner and final candidates of the Offshore Wind Innovation Challenge finals.

Offshore Wind Innovators Finals – December 9

During the Innovation Finals all Business Partners and the top of the offshore wind Industry will be invited to see the presentations. The participants will have the opportunity to present their ideas during the finals. At the end of the event the participants will have a 12 minutes pitch each for public and a jury. The jury will select a an winner.

Your Innovation should be submitted over our website, additional documentation can be send to angelita@echt.community

- No later than 17:00 CET time on 17th of October.
- A confirmation e-mail will inform you that your submission has been received. Participants may enter more than one innovation challenge. Each entry must be submitted on a separate application form.

Clarifications and enquiries

Any questions or requests should be sent to m.weissmann@innovatielink.nl

Kind regards,

The offshore wind innovation challenge team

Angelita Kappers & Martin Weissmann

Co2 neutral Shipping for Offshore Wind – CTVs or SOVs



TKI WIND OP ZEE
Topsector Energie

••• Nederland Maritiem Land
••• High Tech, Hands On

Background

Offshore wind energy is expected to contribute to the transition to a low carbon energy system; the estimates are that in 2050 this should amount to 60GW on the Dutch North Sea. It is clear that the ambition for offshore wind deployment in the Netherlands cannot be achieved based on the same methods and technology as today. This jump in scale creates bottlenecks related to costs, implementation rate, spatial planning, safety, ecology and the integration of large amounts of electricity in the energy system.

TKI Wind op Zee has based their Offshore Wind Innovation Program on these issues. This program covers three main themes:

1. Cost reduction and optimisation of roll out (safe and affordable scale up)
2. Integration in the energy systems (including energy conversion and storage)
3. Integration in the environment (ecology and multi-use)

The CO2 footprint of the offshore wind activities themselves are also subject of this program.

The Challenge

It is the ambition to have a CO2 free energy system. This implies that also the manufacturing, construction, operations and decommissioning of the offshore wind farms should also be CO2 neutral. Today that is not the case. One of the elements in CO2 emissions related to the offshore wind farms during the life cycle is shipping. This includes large installation vessels as well as smaller crew transfer vessels.

This challenge aims to generate concepts for CO2 neutral shipping for offshore wind in the area of the CTVs or SOVs. We expect to see ideas for the development of these vessels that will be evaluated on CO2 footprint, cost, addressable market and time to market. The price for this challenge is funding for a preliminary investigation into the design of the vessel. This funding is based on TKI PPP Allowance and must comply to the associated regulations. An important aspect is that this should be collaborative R&D including a Dutch knowledge institute.



Illustration: example - Ecoliner Farwind



CHALLENGE 2:

Optimize Pressure Control to reduce noise emissions at sea

Background

Different near field noise mitigation systems are available to reduce underwater noise from offshore pile driving for wind turbine foundations. These systems are required to reduce disturbance of marine mammals near the construction site. These systems have been designed to target specific frequencies that produce the most noise. On the market are for example systems from AdBm, IHC and Offnoise solutions.

Near field mitigation systems are combined with one or two bubble curtains that are placed away from the near field system at a distance varying between 50 and 150 meters. These bubble curtains consist of rubber hoses with small holes (nozzles) through which little bubbles are emitted into the water column. The bubbles rise to the surface and create a second and sometimes even a third barrier.

The bubble performance of the curtains is unfortunately often sub-optimal and not realizing the predicted noise reduction that is theoretically possible.

It is envisaged that a re-design of the hose, nozzles and possibly c

It is envisaged that a re-design of the hose, nozzles and possibly compressor system may result in

a better performance of the bubble curtain.

Currently the release of air from the tubes is not controllable, resulting in an unregulated bubble curtain. A robust and cost-effective solution for (adjustable) nozzles and how these are to be installed in the hoses may result in better performance

The Challenge

Challenge Reduce noise emissions at sea during Offshore piling by optimizing **the pressure control** of an air bubble screen, which is both robust and cost-effective. With a specific focus on the nozzles; *how can we control the size, amount, and pressure of the bubbles by the design of the nozzles?*

Offshore wind farms: building with nature

An optimal design for flat oyster racks in offshore wind farms

Background

The installation of large-scale offshore wind farms in the North Sea make it both possible and necessary to strengthen the nature within and surrounding the wind farms.

One way to introduce oysters in the wind farms is to place racks with oyster baskets on the bottom of the sea. These oysters can seed new reefs. Oysters improve the water quality and attract other marine life. Therefore, Stichting De Noordzee and Natuur & Milieu have launched the project: De Rijke Noordzee.

A first pilot at the Luchterduinen wind farm, has shown that the location is suitable. However, the oyster racks did not meet the expectations. The racks have been partly covered with sand and there are doubts about corrosion resistance of the material used. Currently these racks consist of a steel frame (1x1,5m).

In the upcoming years, this project will continue and expand with new partners and more optional locations to run pilots for the oyster racks.

The Challenge

To make future pilots a success, innovation is needed for the construction materials used, and at the same time prevent the racks from being covered with sand.

The challenge of Natuur & Milieu and Stichting de Noordzee is: "What is the optimal design for a construction that can be used to introduce starter populations of flat oysters in offshore wind farms?"

The optimum design needs to be a construction that is stable, easy-to-install, easy-to-locate and easy-to-lift. The durability of the material and the structural integrity must thereby be guaranteed.



Supporting & Organizing Partners

The Offshore Wind Innovators community is powered by Innovatielink in close cooperation with TKI Wind op Zee and the Netherlands Wind Energy Association.

Offshore Wind Innovators

The Offshore Wind Innovation Challenge is executed by the Offshore Wind Innovators. This is a community for companies pioneering the Offshore Wind Industry. It's our goal to give insight into the business- and innovation ecosystem of the industry and it offers practical solutions to the business challenges that pioneering companies face. We help to introduce SME's to a strong innovation network and develop products to help fund and market new products and ideas.

<https://www.offshorewindinnovators.nl/about>

Join our community at:

<https://www.offshorewindinnovators.nl/become-a-member>

Innovatielink

InnovatieLink helps SMEs in the energy and bio based sectors with their questions and problems on their way from concept to market.

<http://www.innovatielink.nl>

TKI Wind op Zee

TKI Wind Op Zee facilitates R&D, demonstration, valorisation, knowledge transfer, collaboration, education and market development towards maximizing cost reduction and economic impact of offshore wind.

<https://topsectorenergie.nl/tki-wind-op-zee>

NWEA

NWEA unites the wind sector and accelerates the transition towards a renewable energy supply by spurring businesses and governments to invest in wind energy.

<http://www.nwea.nl/>