

**GROWING THE SUPPLY CHAIN FOR COST EFFECTIVE  
RELIABLE COMPOSITE BLADES, TOOLING AND SENSOR  
DESIGN FOR TIDAL TURBINES**

**TUESDAY 13<sup>th</sup> OCTOBER, 2020**  
**10h00 – 12h00 ECT**  
**09h00 – 11h00 BST**



## AGENDA OVERVIEW

09h00 – 09h15	Welcome and introduction – Simon Pascoe, MHE consultant & moderator
Session 1	Session 1: Needs and requirements of the Tidal industry
09h15 – 09h25	Emerging needs and requirements for seabed arrays - Erwann Nicolas, Sabella
09h25 – 09h35	Sustainable composite blade scale up - Finlay Wallace, Orbital Marine
09h35 – 09h45	Composite needs in glider design – Bernt Erik Westre, Minesto
09h45 – 09h55	Questions to turbine developers and discussion with participants
09h55 – 10h00	Coffee break (will have to make your own!) – 5 minutes
Session 2	Emerging cross sectoral research on composites, certification and low-cost deployment
10h00 – 10h15	FASTBLADE: Engineering options for new materials technology and accelerated evaluation of tidal turbine blades - Professor Conchúr Ó Brádaigh and Dr. Jeff Steynor, University of Edinburgh
10h15 – 10h25	Testing composites in harsh saltwater environments – Peter Davies, IFREMER
10h25– 10h35	Lower cost manufacturing techniques for composites and tooling for the tidal sector – Phil Slack, UK National Composites Centre
10h35 – 10h45	Updating BV NI603: Validation and certification of emerging composite technologies – with experiences from blade testing in <a href="#">RealTide</a> & <a href="#">MEVEF</a> and Stephane Parboeuf - Bureau Veritas
10h45 -11h00	Questions and discussion with participants
11h00	End of workshop



## GROWING THE SUPPLY CHAIN FOR COST EFFECTIVE RELIABLE COMPOSITE BLADES, TOOLING AND SENSOR DESIGN FOR TIDAL TURBINES 13/10/2020 – SEA TECH WEEK, BREST FRANCE

 **Minesto**

### COMPOSITE NEEDS IN GLIDER DESIGN

Bernt Erik Westre  
Minesto

# Minesto – Composite Supply Chain

**Externals – tailored (whereof most are composites)**

**Internals – more or less standard components**



# Why Composites?

- 1. We always check against LCOE**
- 2. Deep Green systems are slightly net buoyant**
- 3. Speed (abt 18-20 knots), hydrodynamic shape(s) embedded in the design**
- 4. Corrosion**
- 5. Flexibility (to a certain point in the process)**

**We are not locked on any material.**

# Minesto – Composites

**Design and solutions may change based on supplier input, experience, capacity and build method(s)**

**This is difficult to take into account when writing specifications and placing orders**

**Preferably you want early involvement with suppliers, this is sometimes hard to accomplish**

# Minesto – Composites

**Implemented low cost tooling and design options for prototype wings (successfully)**

**Dialogue with supplier(s) to understand:**

**Cost/complexity driving solutions and how to remove/reduce them**

**Upper bounds for manufacturing and transport (prototype stage)**

**Using the composite body/ies for multiple purposes**

# Minesto – Composites

**Larger suppliers are starting to show interest, this is however a general issue when volumes are low and/or requests deviating from existing product range**

**“Smaller” suppliers may however be more agile and easier to deal with**