



# Technology Qualification Plan Statement of Endorsement

Office: **Lloyd's Register EMEA**

Date: **14 September 2015**

This statement is issued to AW Energy Oy

Company Name	AW Energy Oy
Technology Description	WaveRoller is a nearshore wave energy to electricity conversion device, predominantly submerged, employing the principles of an oscillating wave surge converter and performing conversion via a seabed mounted hydraulic / electrical system
Technology Application	<p>The Concept Design of the WaveRoller has been evaluated in accordance with DNV RP-203 2011 Qualification of New Technology and DNV-DSS-401 2012 Qualification Management as reported in Lloyd's Register's (LR) Technical Report QS1.</p> <p>LR is satisfied that the qualification activities in the TQ Plan describe an appropriate approach for demonstrating that the technology goals as established by AW Energy defined below are achievable, and that the concept is suitable for further development and qualification according to DNV-RP-A203.</p> <ul style="list-style-type: none"> <li>• Deploy the WaveRoller near Peniche, Portugal</li> <li>• Operate the WaveRoller for 4,000 hours and over the winter period</li> <li>• Recover and inspect the WaveRoller</li> <li>• Redeploy the WaveRoller</li> <li>• Operative lifetime of 5 years</li> <li>• Produce electricity to the Portuguese</li> </ul>

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

LR409.2.2013.12

	<p>national grid according to the power matrix expectations</p> <ul style="list-style-type: none"> <li>● Test the PTO maintenance operations</li> <li>● Cause negligible environmental damage</li> </ul> <p>This endorsement is limited to the concept design as outlined in Lloyd's Register's (LR) Technology Report QS1 50102564 R02. Subsequent technology development and qualification will be required to achieve certification of the WaveRoller as a nearshore wave energy to electricity conversion device.</p>
<p>Description of Lloyd's Register scope of review</p>	<p>LR has reviewed the TQ Plan and associated documents below as a basis for demonstrating that the device is capable of achieving its technology goals.</p> <p>[1]. R1D300866 // Version: 23 // Revision: B TQPlan</p> <p>[2]. R2_WaveRoller_Tech_Qualification, dated 18/12/2014</p> <p>[3]. Surge 2 Design Basis D300517 // Version: 6// Revision: A, dated 23.1.15</p> <p>[4]. Surge 2 Design Intent, D300523// Version: 5// Revision: A, dated 23.1.15</p> <p>[5]. R1_WaveRoller_Technology_Qualification, dated 26.9.2014,</p>
<p>Limitations of technology</p>	<p>Reference LR Technology Report QS1 and Report Annexes</p>
<p>Reference Standards and Documents</p>	<p>DNV-DSS-401 2012 Technology Qualification Management</p> <p>DNV-RP-203 2011 Qualification of New Technology</p> <p>Technology Report QS1 Number: 50102564 R02</p>
<p>Expiry date of Statement of Endorsement</p>	<p>14<sup>th</sup> September 2018</p> <p>AW Energy should notify LR of any changes to the concept design or the technology goals</p>

**Lloyd's Register EMEA**  
A member of the Lloyd's Register group

Mark Anju  
14 September 2015  
London Office



Mark Anju  
Project Manager to Lloyd's Register EMEA

A subsidiary of Lloyd's Register Group Limited

LR031.1.2013.12