

AWTEC 2018

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TOPIC: PTO of Wave energy Converters

TITLE: **Aquanet Power: Designing and optimising a full scale PTO for commercialisation**

ABSTRACT

Aquanet Power has built and successfully commissioned, tested and validated its full-scale 1MW rated capacity air turbine power take-off (PTO) system of its wave energy conversion technology. The test and validation has fully de-risked the PTO equipment integration and control system enabling the full scale PTO System to achieve TRL8 level.

We will present the state-of-the-art bi-directional wind tunnel test facility built in early 2017 and its capability of simulating any sea conditions in the world. The test facility enabled Aquanet to test and validate its full-scale 1MW rated capacity air turbine PTO system of its wave energy conversion technology, thereby fully de-risking the PTO equipment integration and control system, onshore.

We will share some of the challenges and how we overcame those challenges as well as the process taken to test and fine tune the air turbine and PTO through sophisticated manipulation of the flow rate, pressure drop and control algorithms.

With a simplified design and highly efficient air turbine, the efficiency of the system is thereby increased and hence its cost-effectiveness.

Aquanet Power is developing a demonstration platform of its floating deep water application, ogWAVE, in the wave energy test basin under joint collaboration with its partners, National Taiwan Ocean University. A brief outline of the demonstration project will also be shared with the AWTEC delegates.