

Status on the Wave Star Energy converter development.



www.WaveStarEnergy.com

Bremerhaven 2006 -10 -23

Back ground in head lines.



Wave Star Energy was established October 1st 2003, with the sole purpose of commercialising wave energy.

Over a period of 10 months a scale 1:40 converter was extensively tested in regular as well as irregular waves, to document the configuration, optimize the power output and document dynamic behavior compared to a hydro dynamic model.

Based on the extensive tank testing a scale 1:10 converter was designed and built during 2005 and deployed in the sea on April 6th 2006 at Nissum Bredning (DK). The converter was built and instrumented to the same high standard as a full scale converter.

After initial testing of all sub systems the converter was grid connected and put into unattended operation on July 24st 2006.

It has been in operation since then.



What is special about the Wave Star concept?

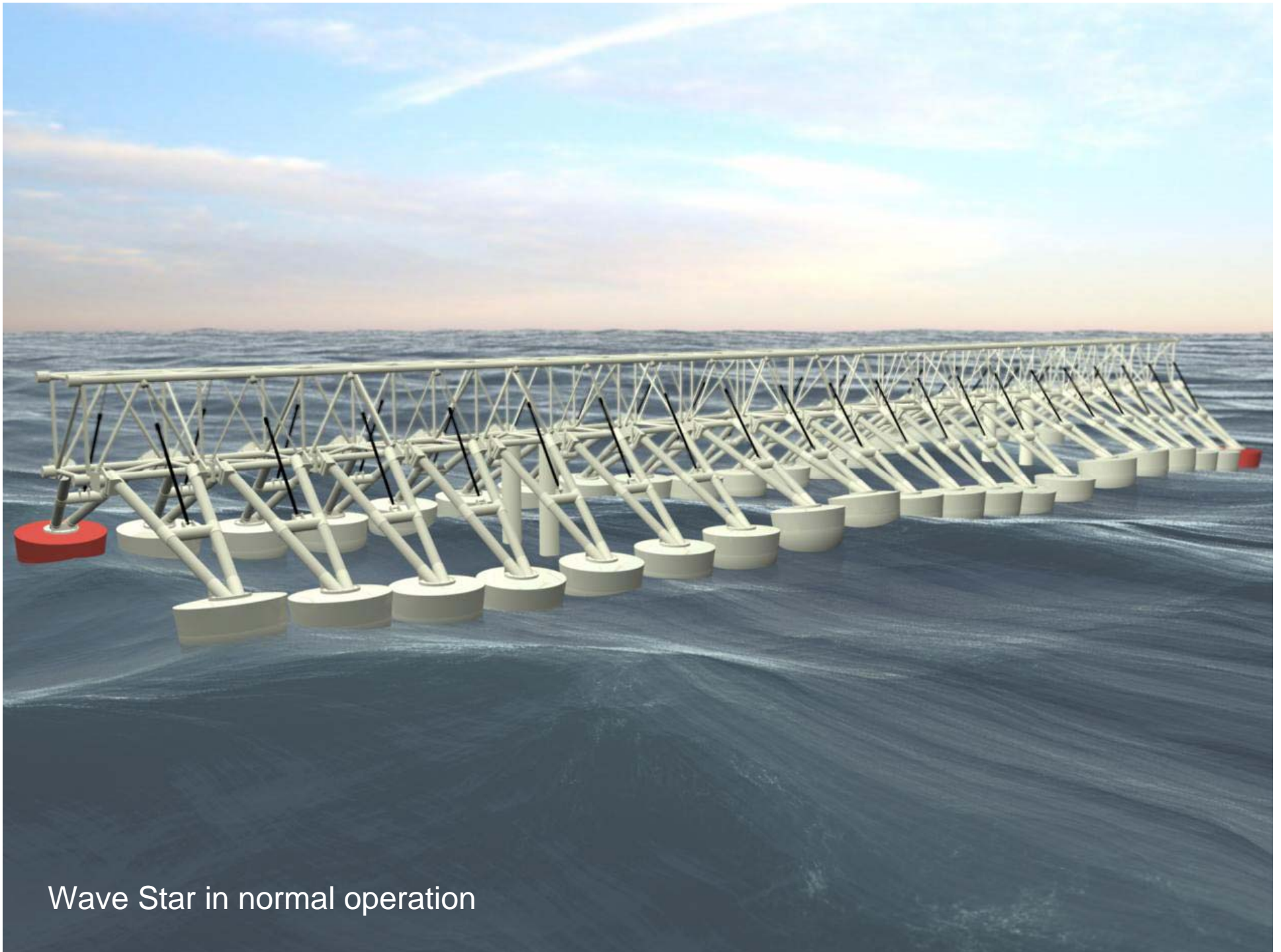
It is a simple reliable design, which can be storm protected. It sits on piles, just like an offshore structure.

All moving parts are above water and are well protected from the sea environment.

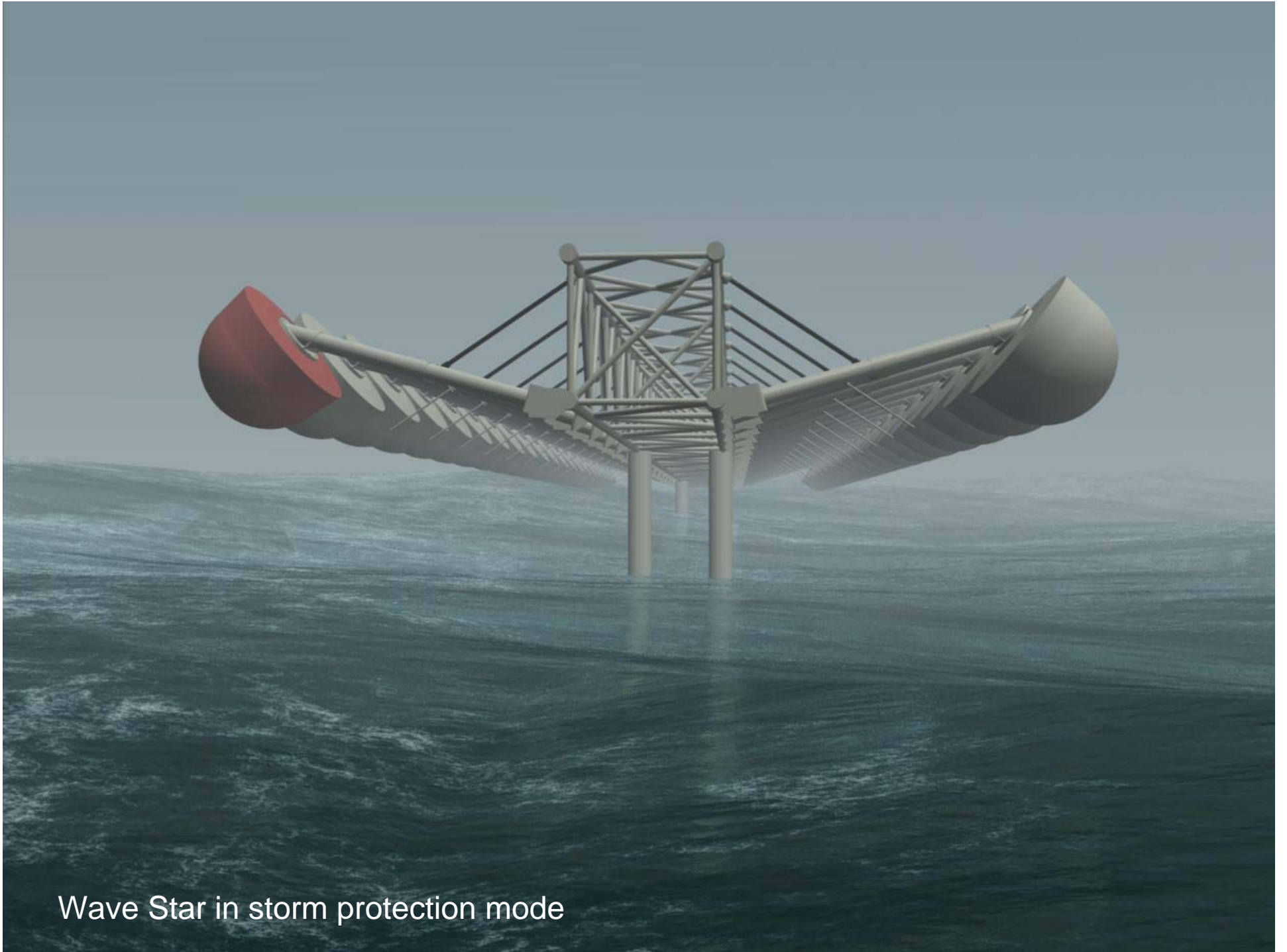
It is only based on standard components, standard offshore - and wind turbine technology.

It is scalable into multi MW converters.

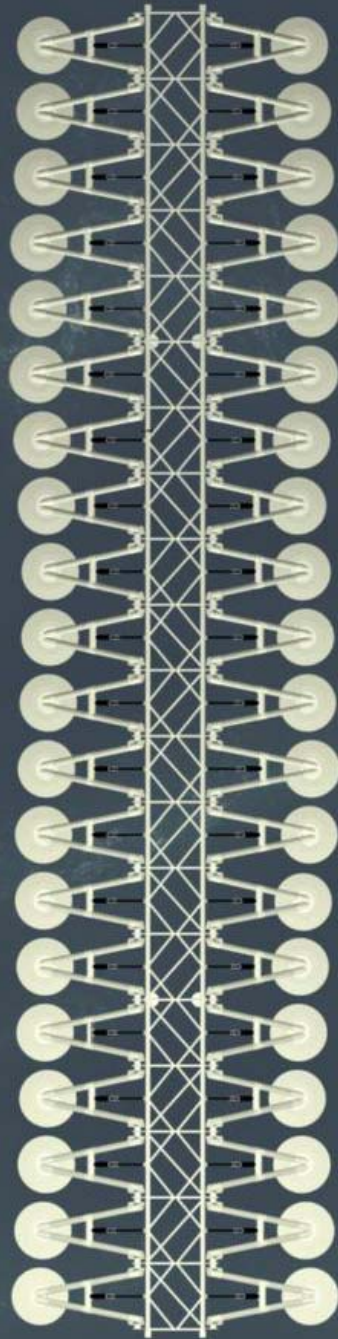
Weight and electric production per MW makes it realistic to become commercial over time, and supplement wind turbines on a big scale.



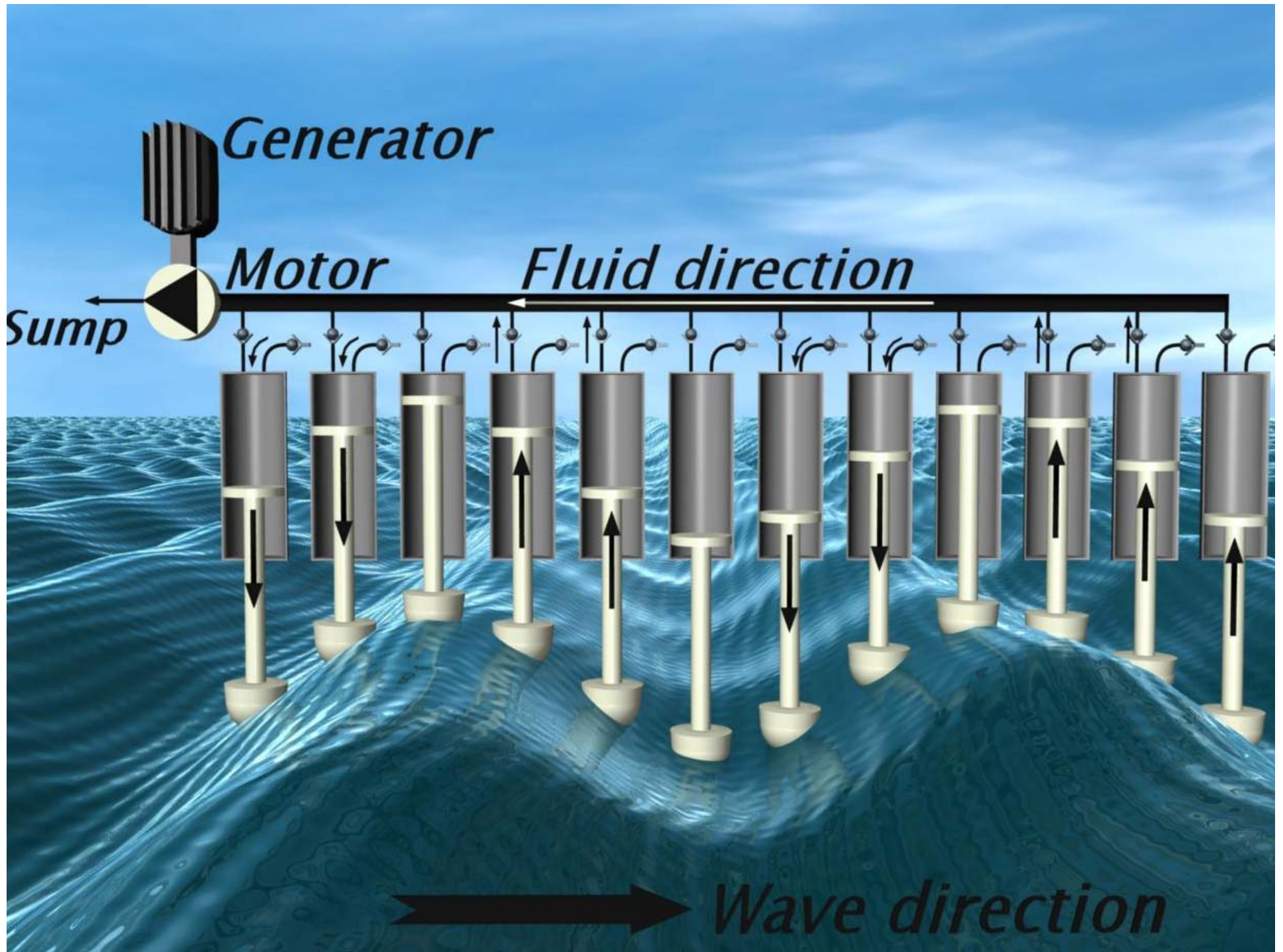
Wave Star in normal operation



Wave Star in storm protection mode



*Dominant
Wave Direction*





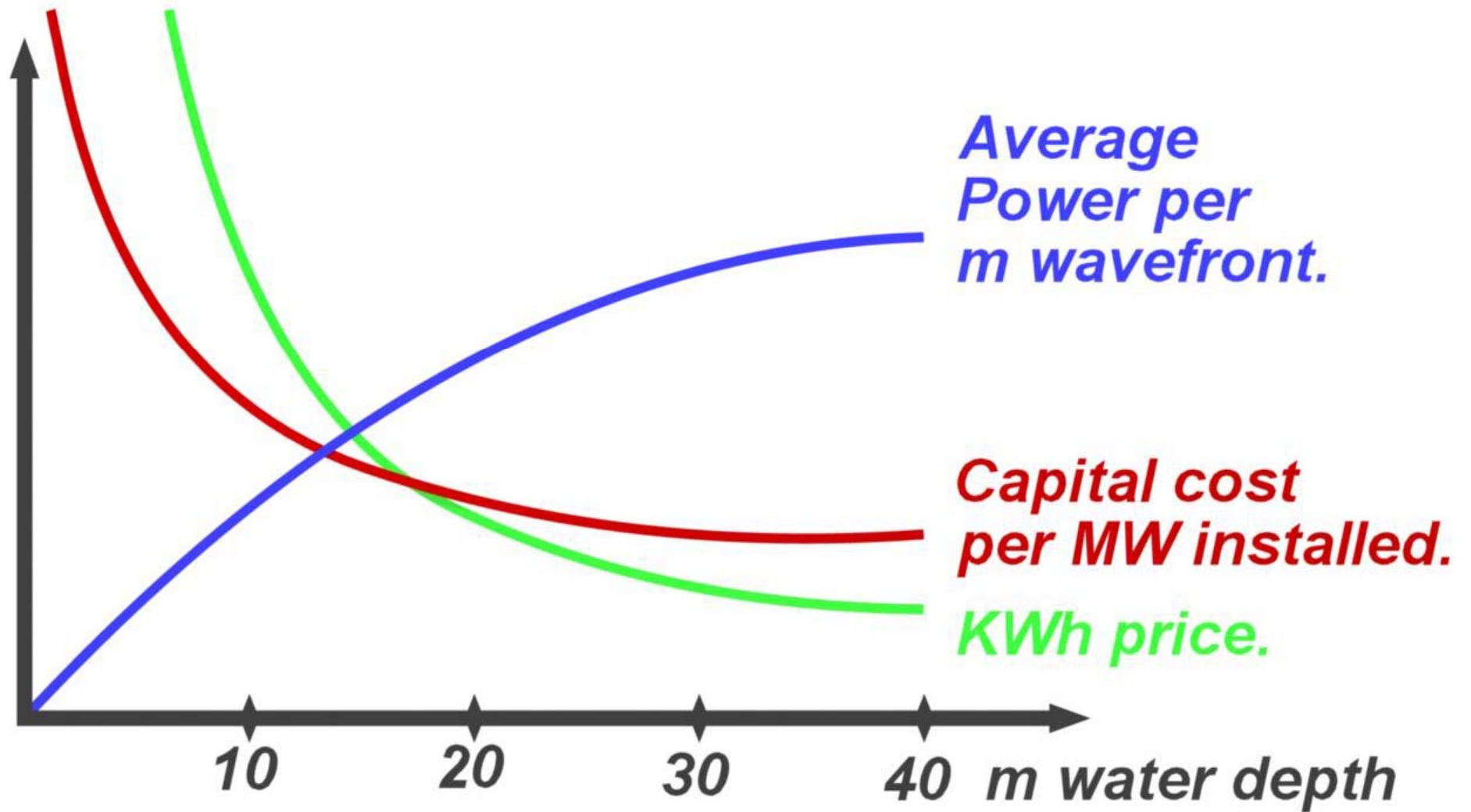
How does the power scale with seize?

The test converter in Nissum Bredning is a scale 1:10 converter. It is 24 m long with 40 floates of each Ø 1m, and operates in 2 m of water. In **0,5 m Hs** the power output goal is **1.800 W** electric power.

The scale 1:2 converter is 120 m long with 40 floats of Ø 5 m and operates in 10 m of water depth. In **2,5 m Hs** the power output is **500 kW**.

The scale 1:1 converter is 240 m long with 40 floats of each Ø 10 m and operates in 20 m of water. In **5,0 m Hs** the power output is **6 MW**.

The scale 1,5 :1 converter is 360 m long with 40 floats of each Ø 15 m and operates in 30 m of water. In **7,5 m Hs** the power output is **24 MW**.





What are the plans for the future?

The scale 1:10 converter in Nissum Bredning will continue to operate for the next 2 years until August 2008. The goal is to optimize the energy production and obtain long term working experience.

Design and build a scale 1:2, 500 kW converter for Horns Rev in the North Sea during 2007 / 2008 .

Arms and floats for the 500 kW converter will be installed and tested at a pier in the North Sea in 2007.

The scale 1:2, 500 kW will be pre installed at the North of Lolland at Onsevig i 2008 / 2009.

Later transferred and installed at Horns Rev in 2009.



