



The Business of
Marine Energy

Oceania Room | Te Papa Tongarewa | Wellington

Future Energy.
Now.

Julius Espedal
CEO/Founder

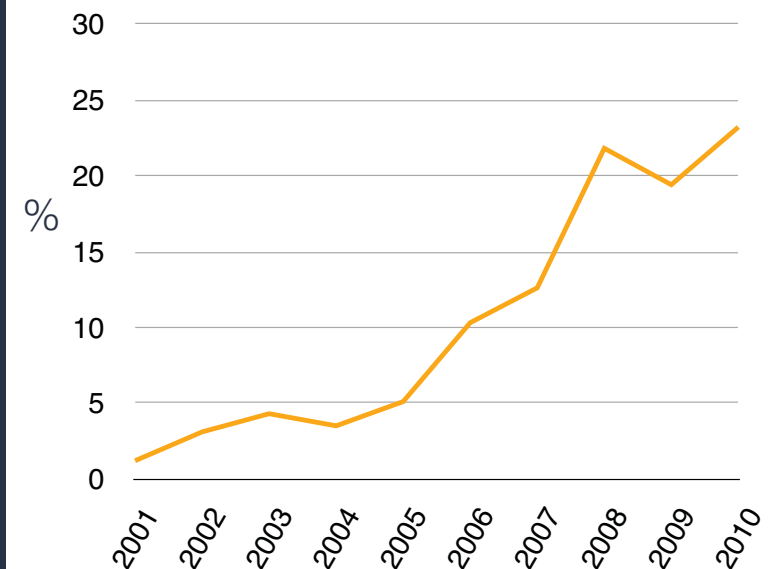


Overview

- ▶ Global: 19% energy from renewable (incl. biomass & hydro)
- ▶ New renewable: 3% of global energy
35% growth
- ▶ 2008: More renewable energy than conventional energy installed*

Source: cleanedge.com
REN21

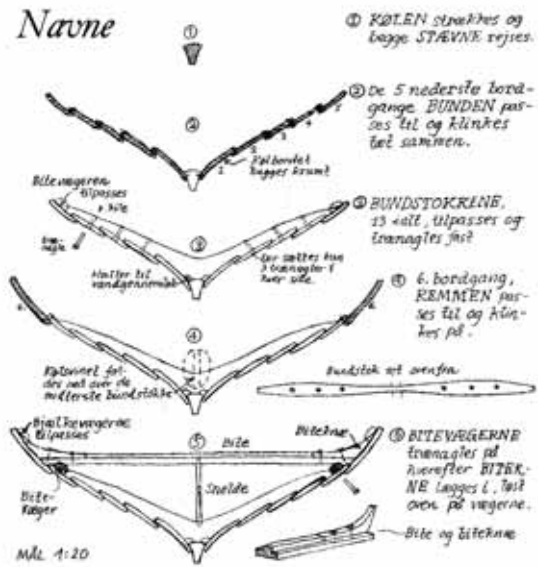
USA: % of VC investments in Renewable Energy



Norway



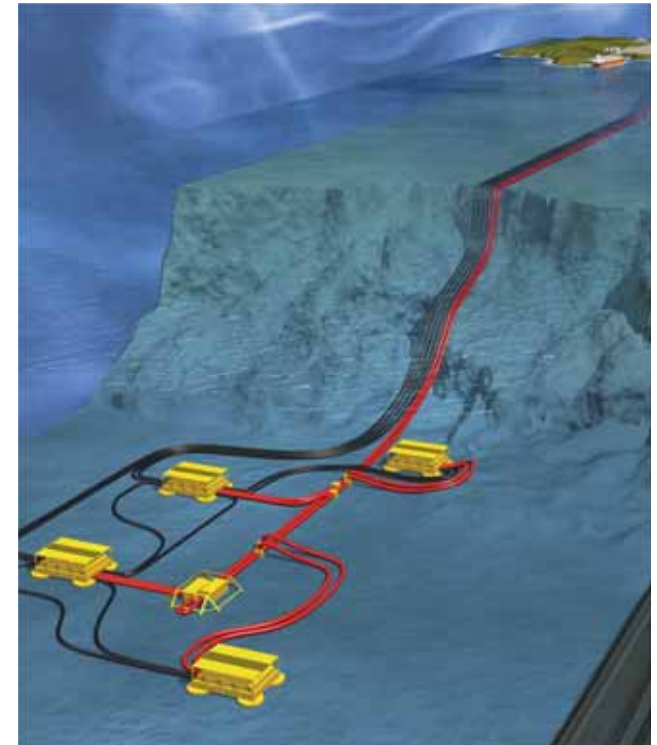
Norway



De vigtigste navne på vikingeskibetsbygget, her ses på Skuldelev 1-skibet.



Norway



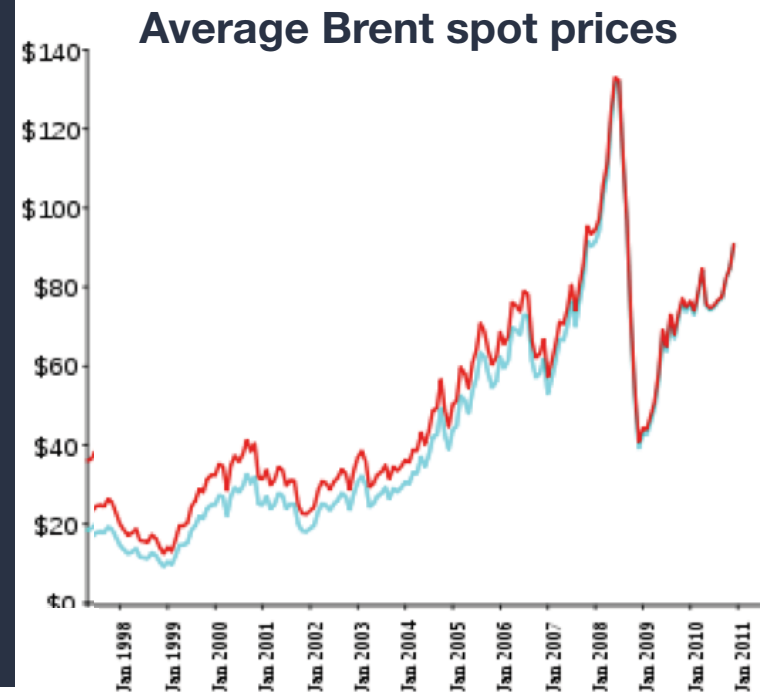
1999 - Oil price:

US\$ 12
pr. barrel



Dependency of oil

- ▶ 1999 - Oil price: US\$ 12 pr. barrel
- ▶ 10x increase in 9 years
- ▶ Increasing demand
- ▶ Reduced production





**Future Energy.
Now!**




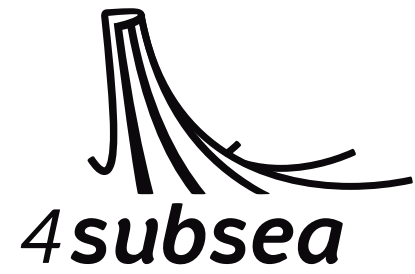
$\frac{1}{2}mv^2$ $\frac{1}{2}kx^2$ $\frac{1}{2}I\omega^2$

Dr. techn. Olav Olsen

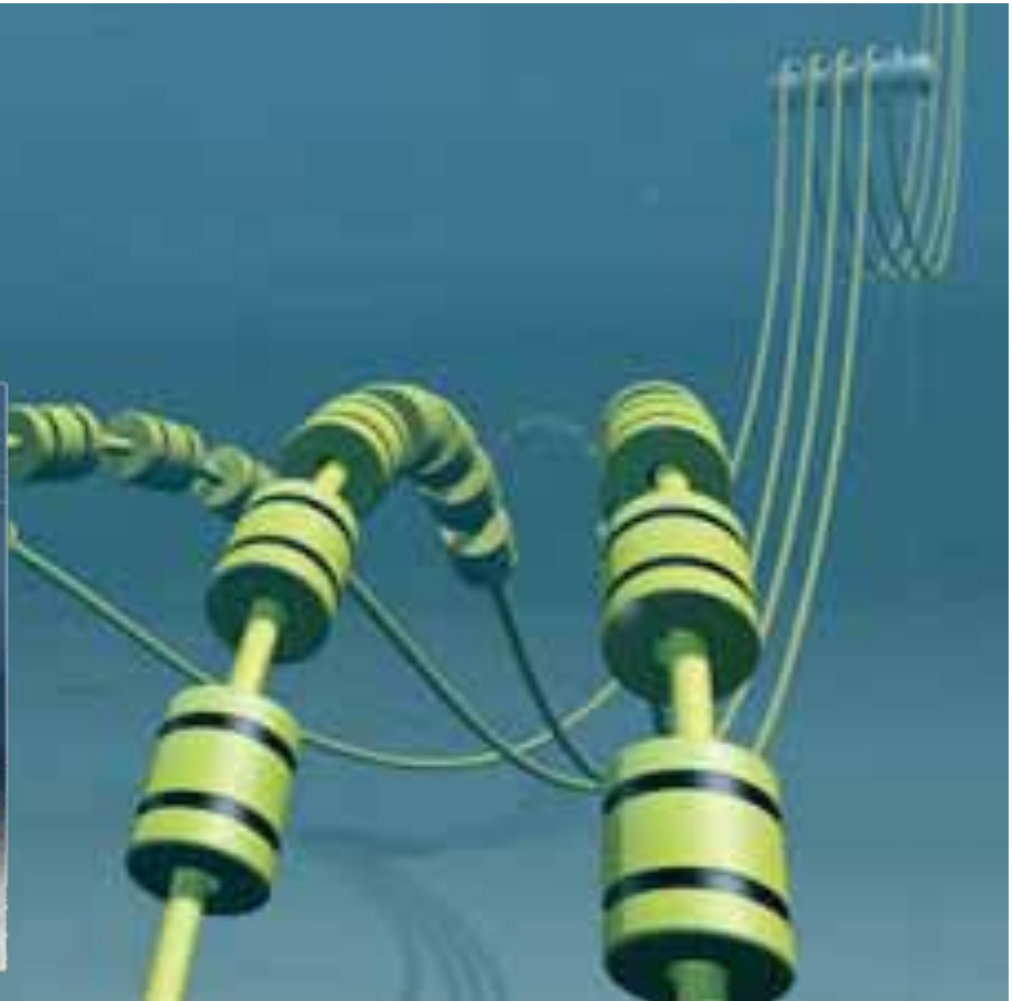
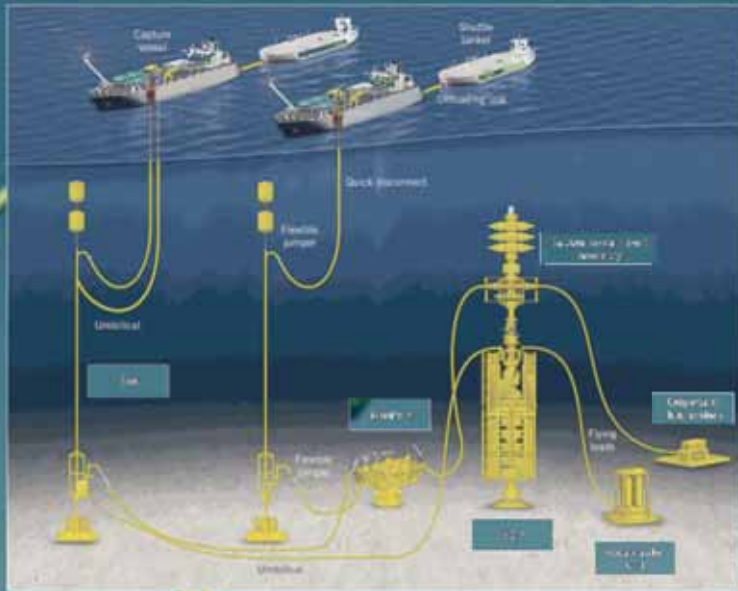




 **AkerSolutions™**



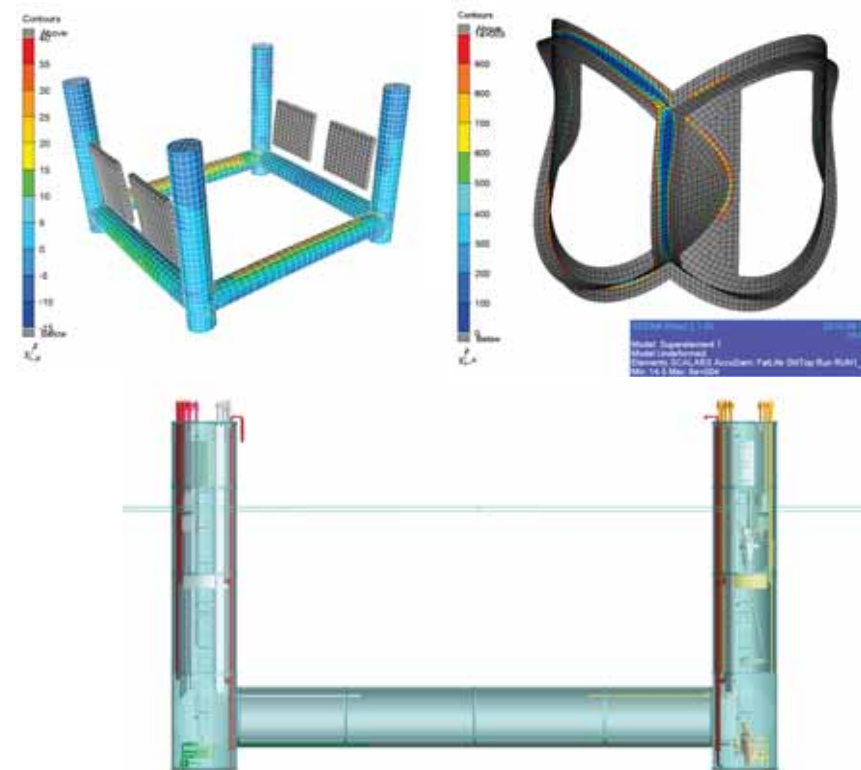
SUBSEA CONTAINMENT SYSTEM



Engineering

- by the best offshore engineering teams

- ▶ Based on Norwegian offshore industry
- ▶ Simple design
- ▶ Designed for 60 years operation
- ▶ Minimum maintenance
- ▶ Verified by DNV and Aalborg University



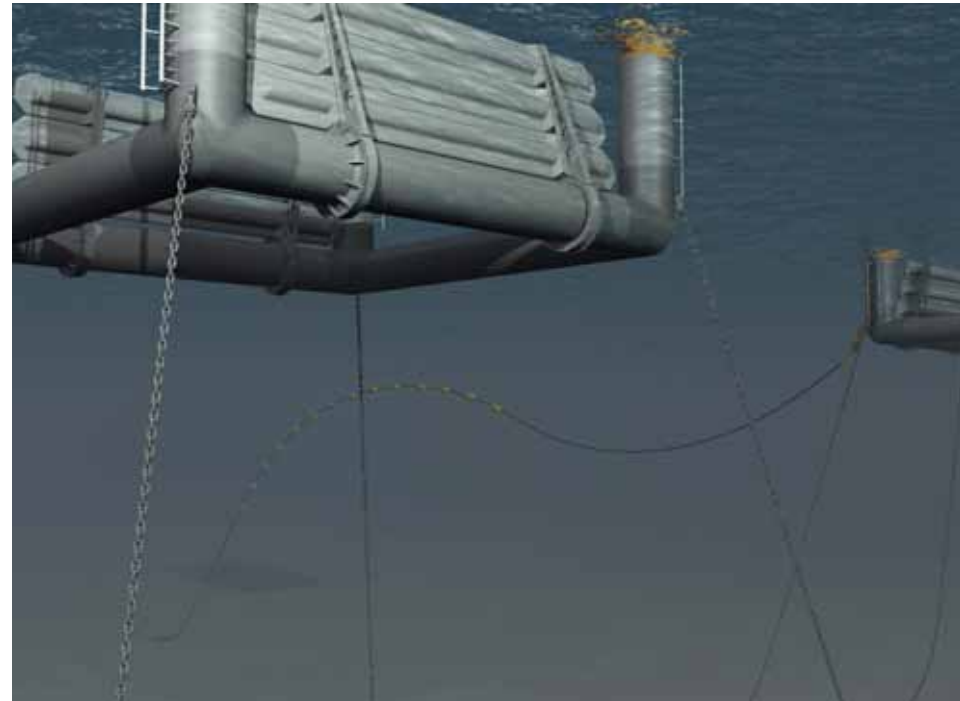


**«The performance of the Langlee
with 35% efficiency is in the good
end of what we could expect»**

**Jens Peter Kofoed
Associate Professor, Aalborg University, Denmark**

Langlee E1 Wave Energy Converter

- ▶ Dimensions: 15 x 15 m
- ▶ Rated effect: 50 kW
- ▶ Yearly production: 280 kWh
- ▶ Optimized for medium waves (1,5 - 4 m)
- ▶ Few moving parts
- ▶ Fabrication by local industry
- ▶ Complete onshore
- ▶ Tow to site - quick installation





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