

## Excel calculations of "Hybrid Aquaculture Wind Wave Energy"

Pilot at Utsira North of OMEA40MW

Investment over all	\$ 300 million
CAPEX Aquaculture	60 %
Investment energy	\$ 120 million
Repayment period	25 years
Interest rate	6 %
Repayment	\$ 4,8 million
Interest	\$ 3,6 million
CAPEX energy	\$ 8,4 million
Size wind turbines	8 MW
Number of turbines	3
Power from wind	24 MW
Power from wind and waves	40 MW
Hours in a year	8760 hours
Operation time	50 %
Energy each year	175200000 kWh
OPEX for energy	0,01 \$/kWh
El-certificate	0 \$/kWh
LCOE	0,06 \$/kWh
Effect each m wavefront	60 kW each m
Length WEC	300 m
Effect WEC	18 MW
Energy price at Nord Pool	0,1 \$/kWh
Profit energy each year	\$ 6.3 million
Investment aquaculture	\$ 180 million
Length each cage	60 m
Pi	3,14159265
60 degrees	1,04719755 radian
Calculation factor	52 m
Area each cage	1559 sqm
Depth each cage	50 m
Volum each cage	77942 qm
Number of cages	12 cages
Volum OMEA40MW	1 mil. qm
Biomass each. qm	15 kg/qm
Biomass total each year	15000 tons
Spending on fish food	3 \$/kg biomass
Repayment	\$ 7 million
Interest	\$ 5,4 million
CAPEX aquaculture	\$ 12,6 million

CAPEX each kg	0,8 \$/kg
Wages and other costs	2 \$/kg
OPEX each kg	5 \$/kg biomass
CAPEX + OPEX each kg	5,8 \$/kg biomass
Marked price each kg	8 \$/kg
Cycle time	1 year
Income before tax	\$ 34,5 million