

Aquaculture Wind Wave Energy(AWWE)

	€ 1 11,74 kr Euro	Norwegian kr
Investment(AWWE)	3,00E+08 € 300,0 million	3,52E+09 kr 3,5 mrd.
Repayment period	30 year	
Interest rate	6 %	
Repayment each year	1,00E+07 € 10,0 million	
Interest each year	9,00E+06 € 9,0 million	
CAPEX	1,90E+07 € 19,0 million	
OPEX	0,01 € pr. kWh	0,1174 kr/kWh
Power(AWWE)	5,00E+07 W	50 MW
Hour in a year	8760 heures	
Capacity factor	50 %	
Energy in a year	2,19E+11 Wh	2,19E+08 kWh
LCOE without aquaculture	0,10 €/kWh	1,14 kr/kWh
Rental income from aquaculture:		
Capacity	10000 tons	10000000 kg
Income from aquaculture each kg	0,7 €/kg	8,2 kr/kg
Rental income aquaculture each year	7,00E+06 €	
LCOE(aquaculture included)	0,055 €/kWh	0,64 kr/kWh

Calculation if this technology was used to build 500 MW at Utsira North, and the auction was won with € 0,14/kWh.

Auction(PPA)	0,14 €/kWh	1,64 kr/kWh
Subsidies of kr 35 billion guaranty the price	2,98E+09 € 2,98 billion	3,50E+10 kr 35,0 mrd.
Power	5,00E+08 W	500,0 MW
Numbers of AWWE	10	
Energy each year	2,19E+09 kWh	
Profit each kWh	8,52E-02 €/kWh	
Profit each year	186600000,0 € 186,6 million	
Investment	3,00E+09 € 3,00 billion	3,52E+10 kr 35,2 mrd.
Profit in %	6,2 %	

China, Belgium and Sweden use green certificates.

Calculation if green certificates are used for AWWE in Norway.

Total energyproduction each year	1,50E+14 Wh	1,50E+11 kWh
Certificate fee	0,01 €/kWh	
Income from certificates each year	1,50E+09 €	
Green certificate each kWh new energy	0,02 €/kWh	
Support time of green certificates	15 years	
Total kWh to be supported	75000000000 kWh	
kWh to be supported each year	5000000000 kWh	
Capacity factor AWWE	50 %	
Hours in a year	8760 h	
Power to be supported each year	1141553 kW	1142 MW
Power each AWWE	50 MW	
Number of AWWE to be built each year	23	
PPA	0,035 €/kWh	0,4 kr/kWh

Menon Economics have analyzed the job marked if 30 GW makes a float wind industry in Norway, and predicts 30000 jobs.

NVE have analyzed the energy marked with 30 GW new renewable energy by 2050, and predicts an energy price of € 0,04/kWh.