

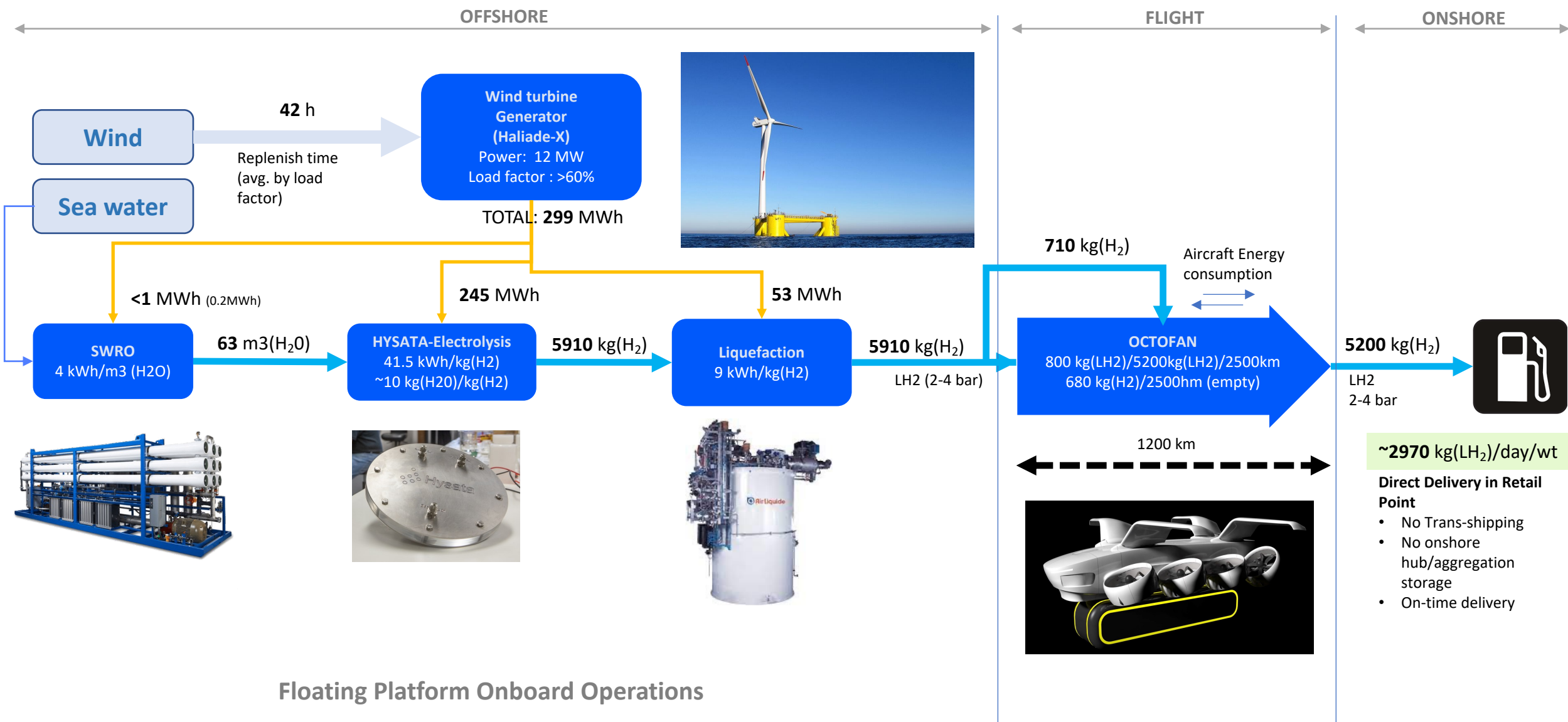


OCTOFAN / HySeaWinds





HySeaWinds Project / MASTER MASS & ENERGY DIAGRAMM



- The energy use for seawater RO is estimated in the range 2.5 to 4.0 kWh m⁻³. Source: <https://www.sciencedirect.com/science/article/abs/pii/S030626191931339X?via%3Dihub>
- The Liquefier efficiency is set at 8kWh/kgH₂: https://www.hydrogen.energy.gov/pdfs/9013_energy_requirements_for_hydrogen_gas_compression.pdf. See also: <https://www.idealhy.eu/>. Note that preliminary Compression@20 bar power requirement is : 1 kWh/kg(H₂)
- Average high sea load factor reported around 55%: <https://www.smart-energy.com/renewable-energy/highest-offshore-wind-load-factors-recorded-since-2015/> New gen haliade-X expected load factor > 60%



1 boe =	1.69 MWh	boe: barril of Oil equivalent
Europe Oil daily consumption	1.80E+07 boe/d	Source: https://www.statista.com/statistics/332050/total-oil-daily-consumption-in-europe/
	30.42 TWh/d	
ICE LHV/mech efficiency	36%	
FC LHV/mech efficiency	55%	
Adjusted required power	19.91 TWh/d	
	kWh/kg(H ₂	
H ₂ LHV	33.3)	
	5.98E+08 kg(H ₂)/d	
Average H ₂ production per offshore wind turbine	2970 kg/d/turbine	
Nb of required wind turbines	201 325 x	
wind turbine rotor diameter	220 m	GE Haliade-X (12MW)
nb of units -front	800 x	
Required front spacing	1 km	The optimum spacing is between 2 and 4 times in the direction perpendicular to the wind.
required front length	704 km	
nb of units -depth	252 x	
Required depth spacing	3 km	The optimum spacing is set between 8 and 12 times the rotor diameter in the direction of the wind
Required depth length	664 km	
Required offshore area	467 719 km ²	



HYSEAWINDS has the potential to replace **ALL** Europe Oil Consumption, to help grid stability by offering a massive Energy storage capacity, to cut **ALL** Oil dependencies to (potentially hostile) foreign nations.



Simple example of area requirements for Europe Oil replacement / OFFSHORE



445 232 km²



Area requirements for HYSEAWINDS are compatible with deep sea offshore implantations