



E-island

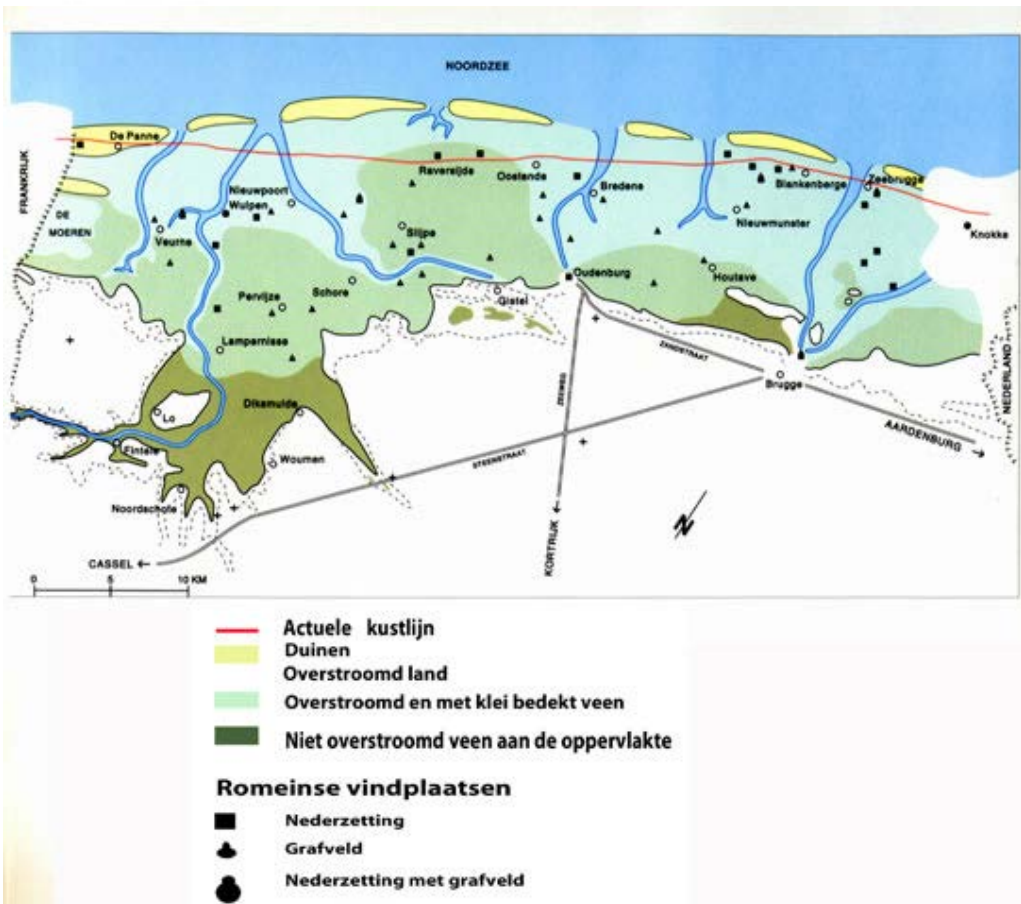
Centrale de pompage-turbinage en mer
Offshore Pumped Hydro Storage Atoll



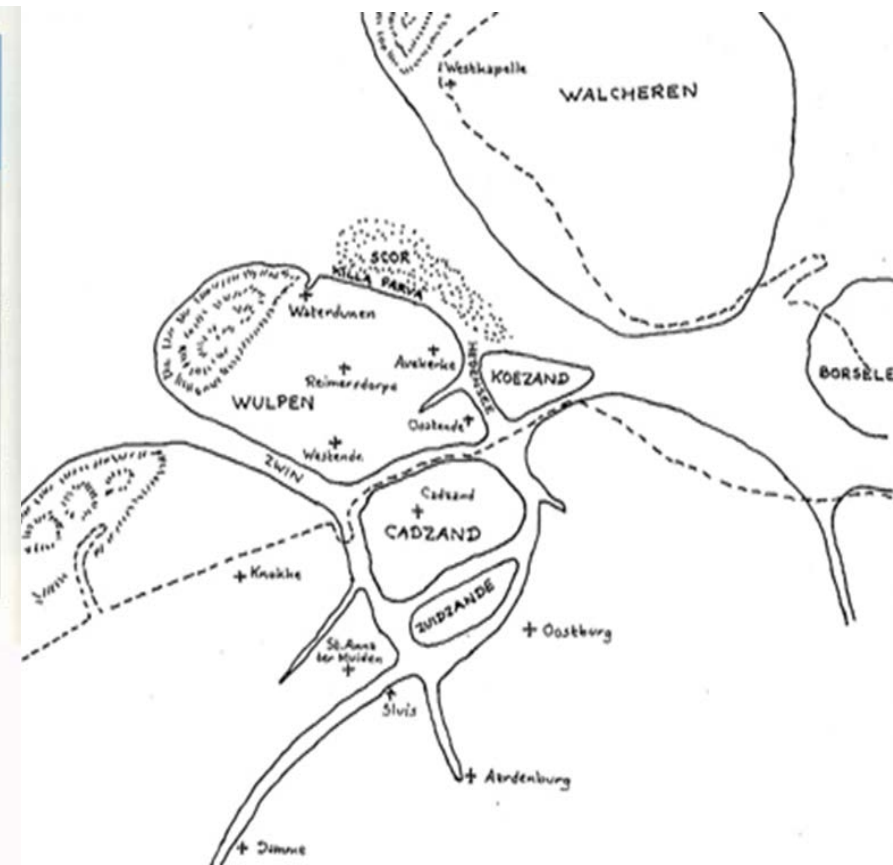
CERES 322, Université de Liège, le 24 octobre 2016



Une île belge! Mon Dieu ...



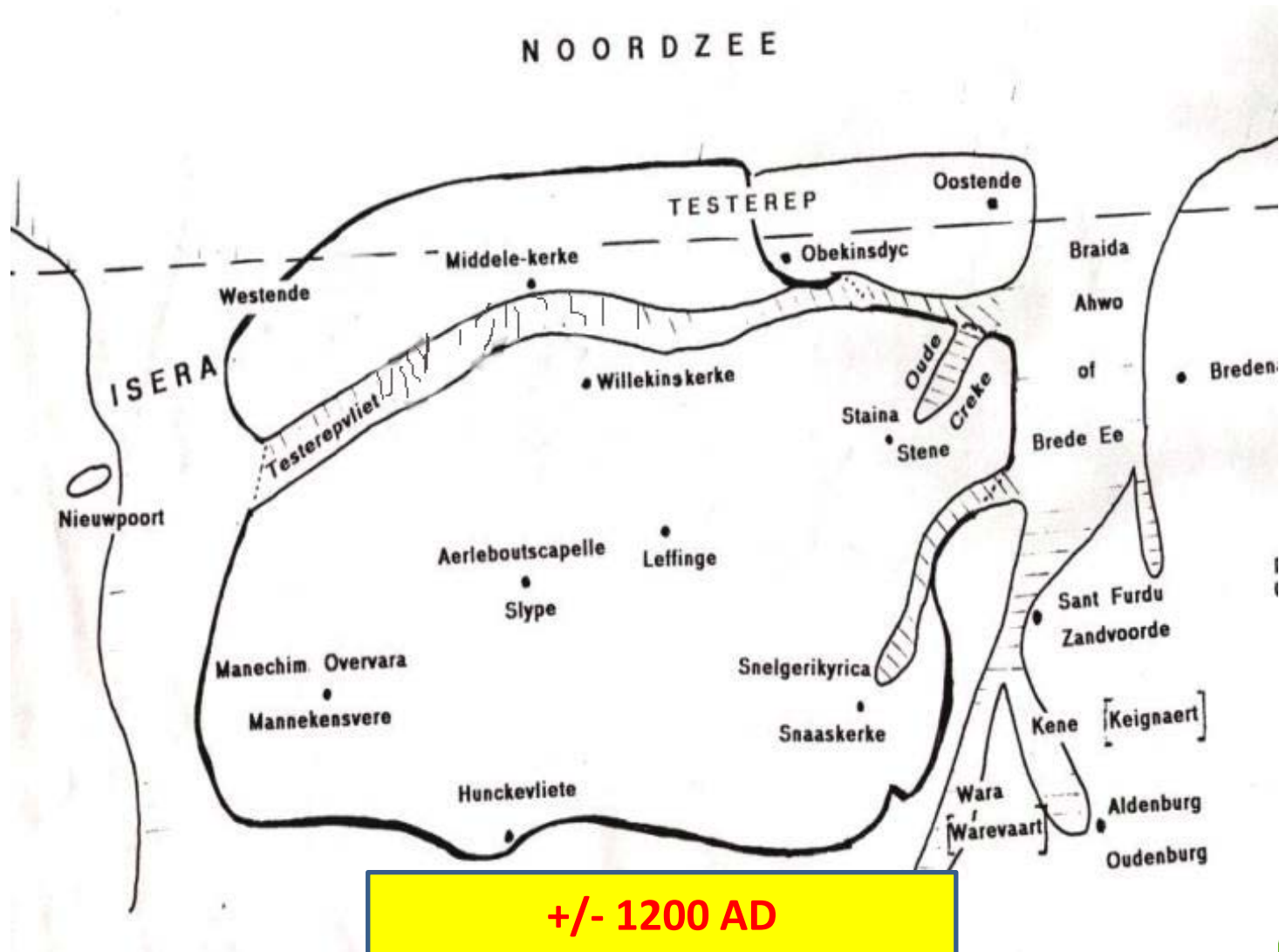
En époque romaine



+/- 1500 AD



Testerep / Ter Streep





Energies renouvelables



C-POWER, Ostende

STOCKAGE d'énergie en cas d'abondance, INJECTION d'énergie en cas de déficit.

EOLIENNES & PHOTOVOLTAIQUES: INTERMITTENCE!



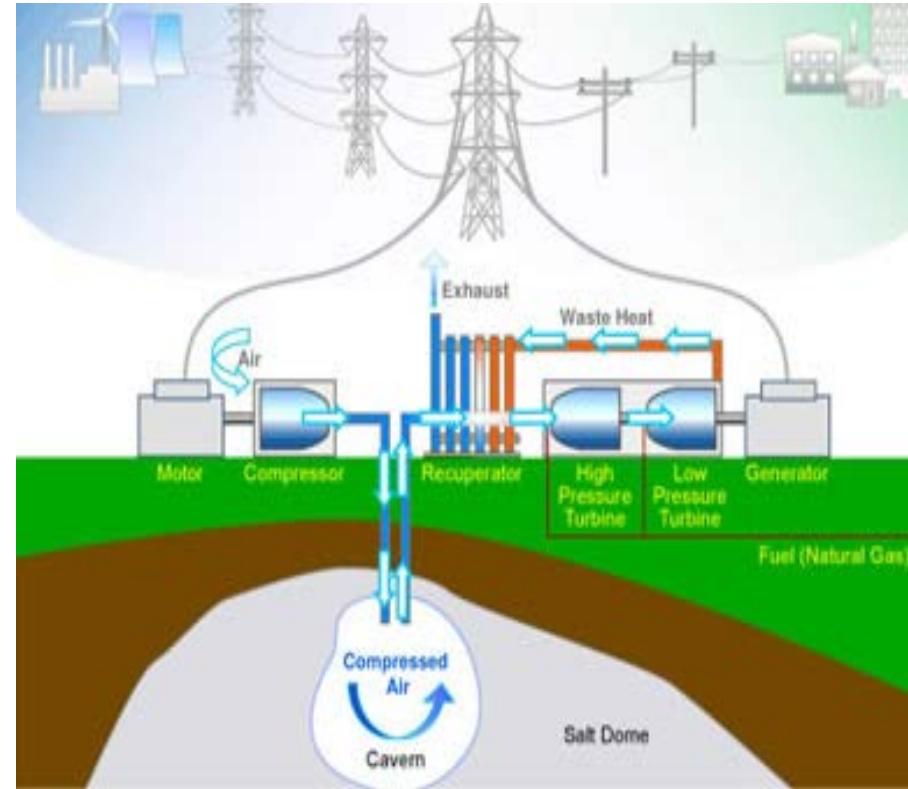


STOCKAGE D'ENERGIE A GRANDE ECHELLE

COO



CENTRALE POMPAGE-TURBINAGE:
99% du stockage mondial à grande échelle.



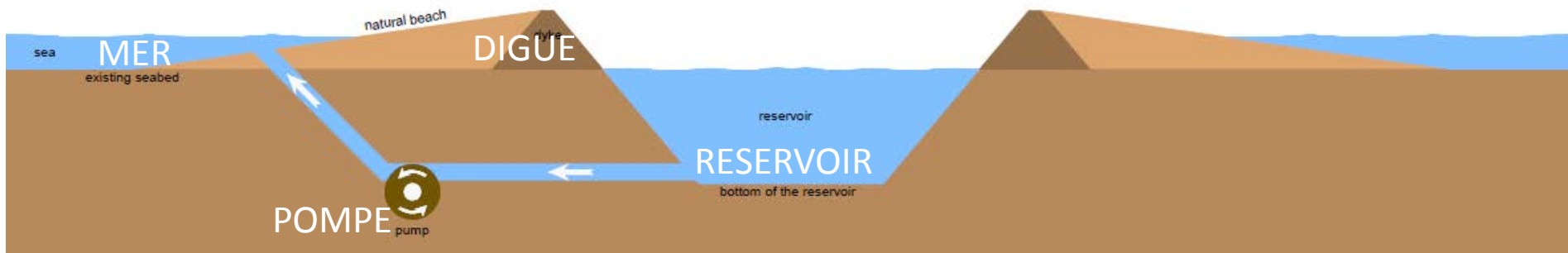
COMPRESSED AIR ENERGY STORAGE:
2 centrales (1 aux Etats-Unis, 1 en Allemagne) construites depuis 1978.



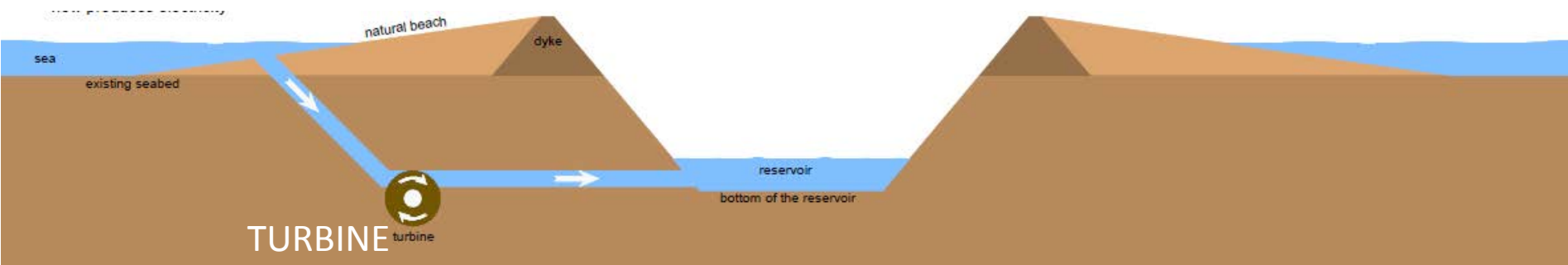
E-island =

CENTRALE POMPAGE-TURBINAGE EN MER

POMPER = STOCKER DE L'ENERGIE

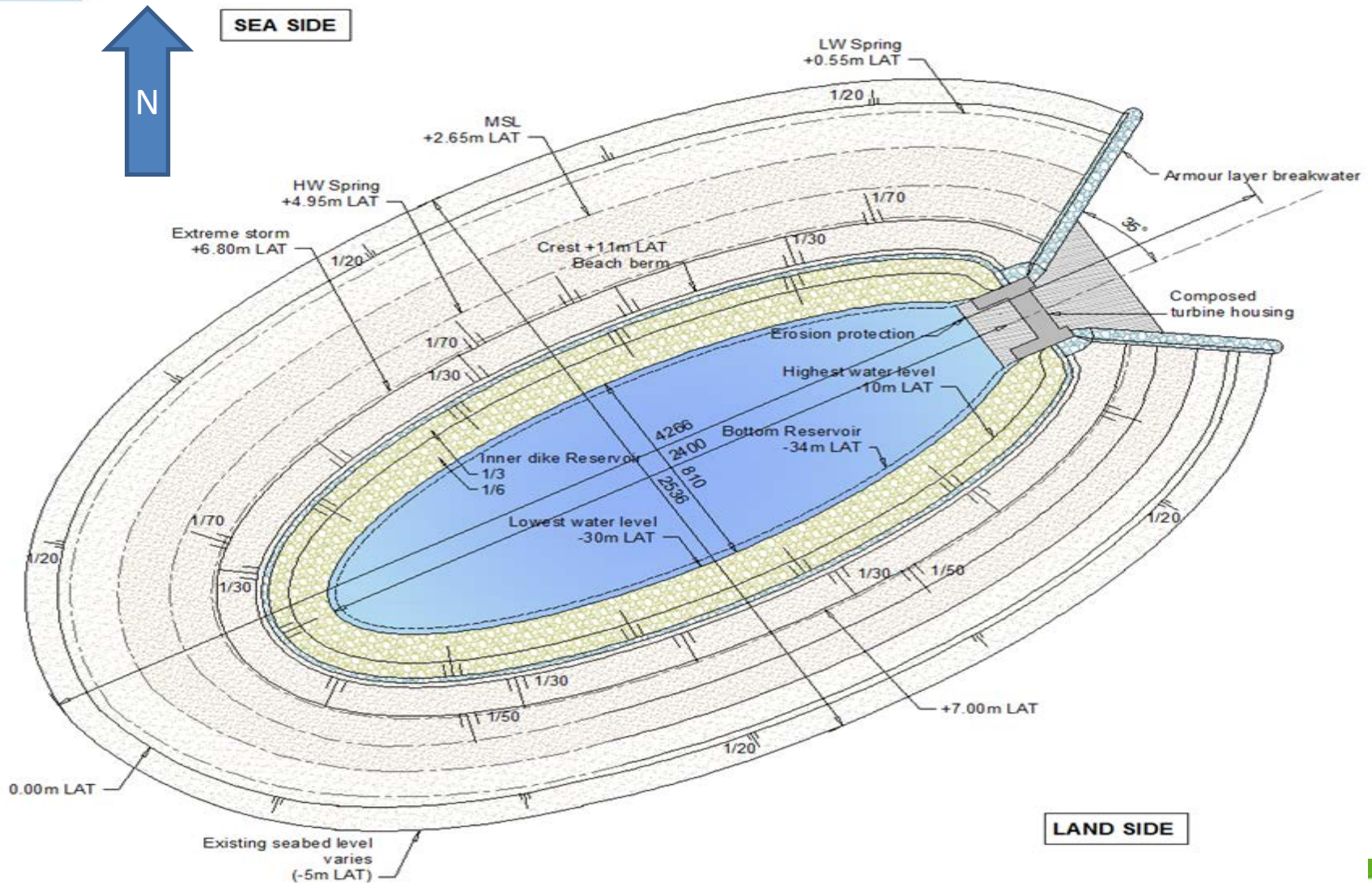


TURBINER = INJECTER DE L'ENERGIE





Un dessin préalable (2.200 MWh, facilement extensible)





Exemple d'une île artificielle

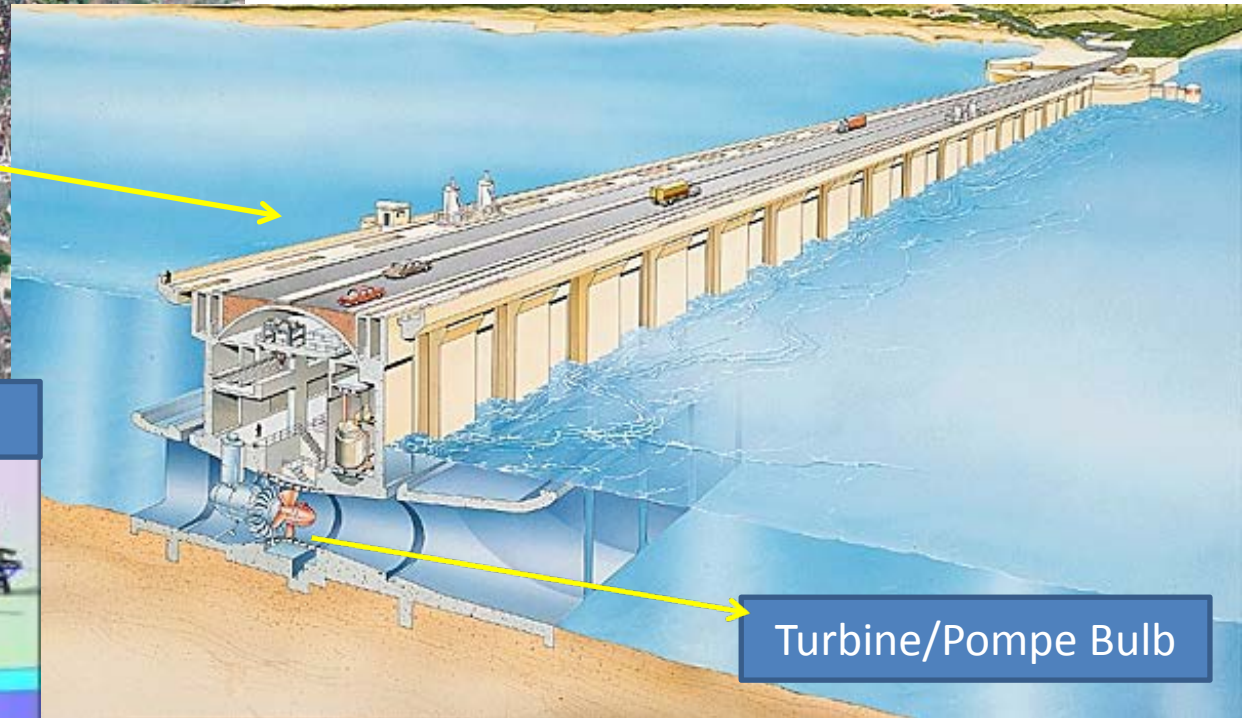
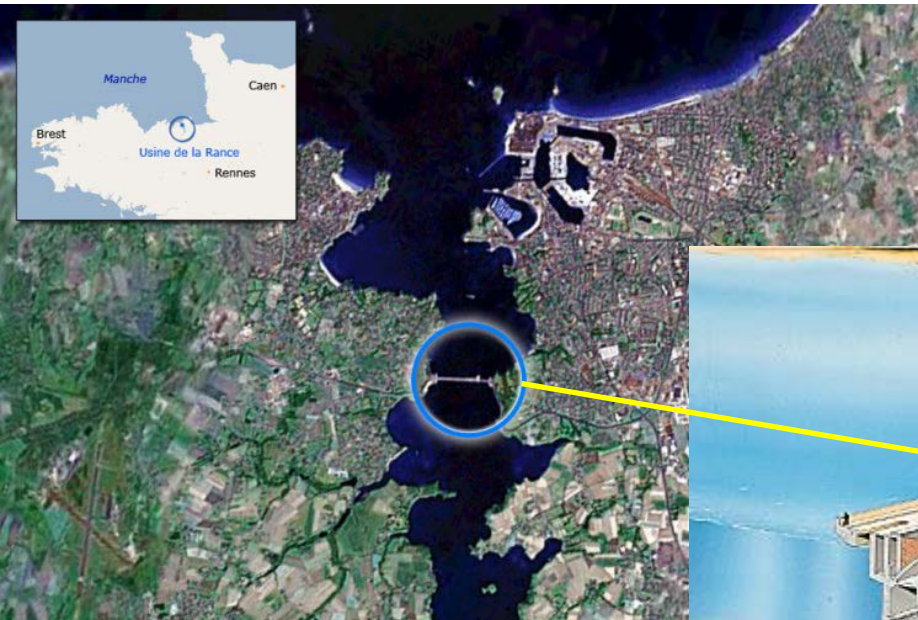


Satah-al-Razboot, Golfe Arabe, Forage pétrolier (DEME)



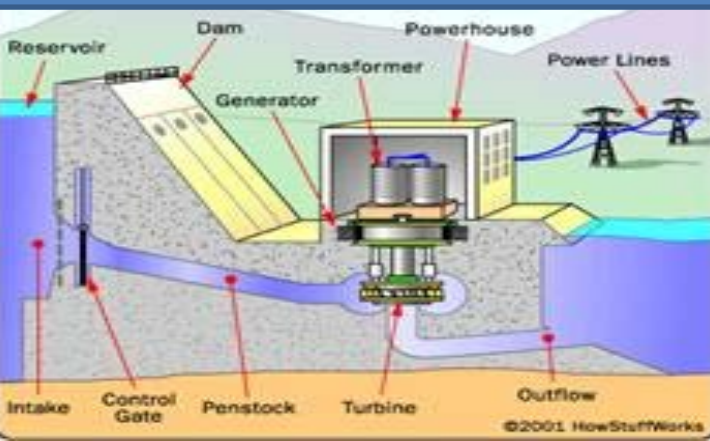
Exemple de pompage et turbinage en environnement salin: La Rance (F)

Usine marémotrice,
opérationnelle pendant ca. 50
années.



Turbine/Pompe Bulb

Exemple Turbine/Pompe Francis



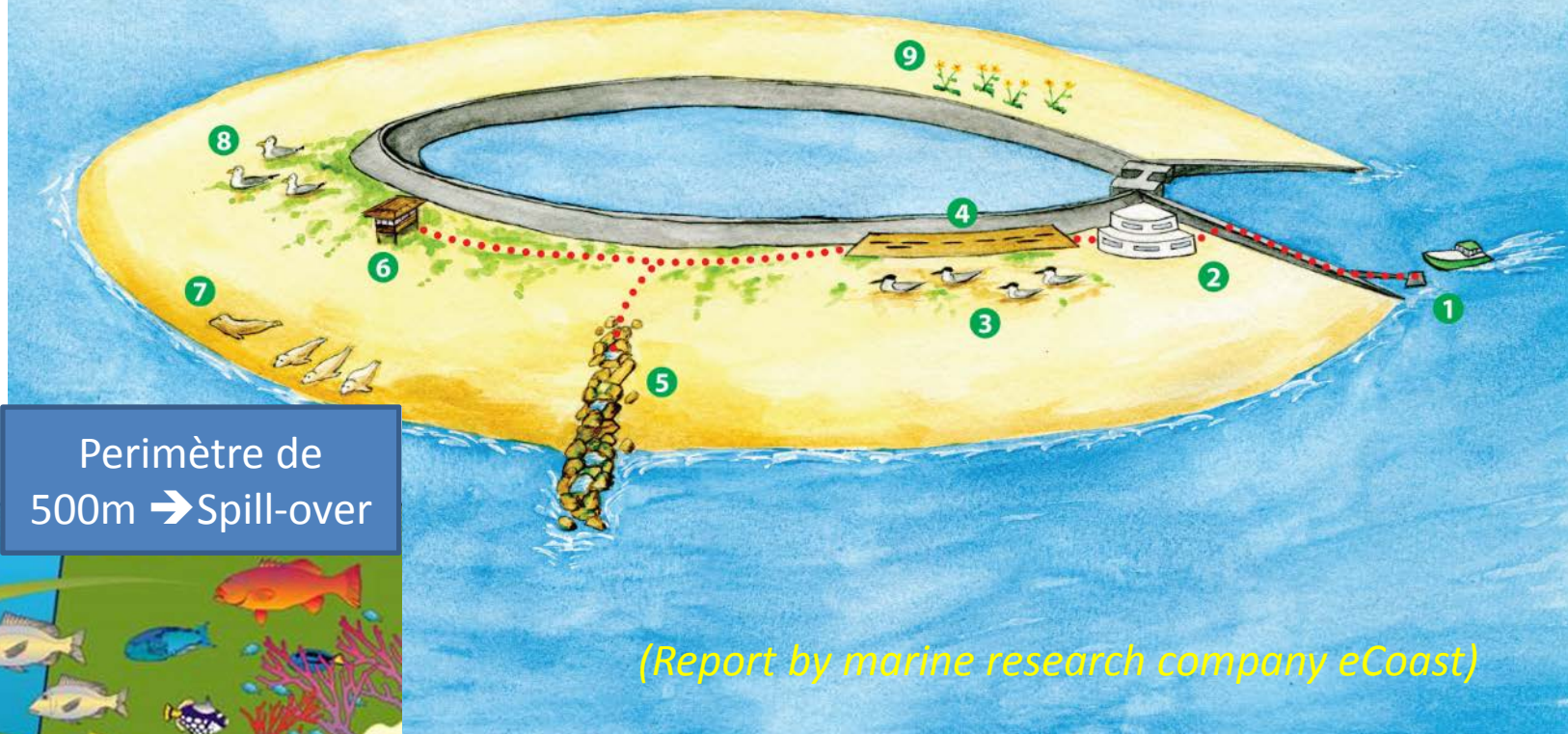


E-island: potentiel environnemental

iLand

pression (niet op schaal)

- | | |
|-------------------------------|-----------------------|
| ① pier | ⑥ kijkhut |
| ② bezoekerscentrum | ⑦ zeehondenrustplaats |
| ③ sternenkolonie | ⑧ meeuwenkolonie |
| ④ uitkijkpunt | ⑨ vloedmerkplanten |
| ⑤ strandhoofd | |
| route geleide wandeling | |



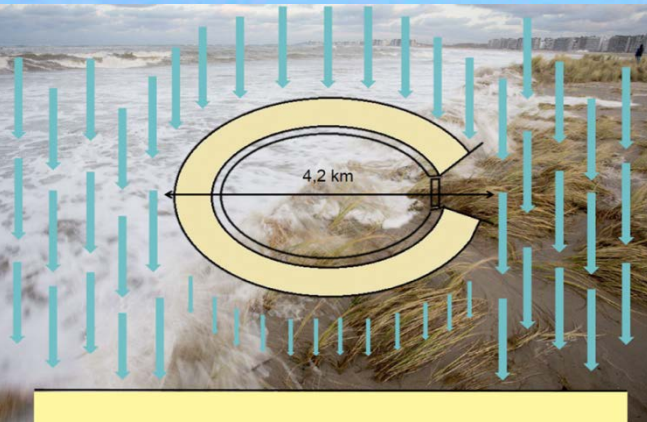
Perimètre de
500m → Spill-over

(Report by marine research company eCoast)



E-island: modèle multi-cashflow

DEFENSE DE LA COTE



PLATFORME DES ENERGIES RENOUVELABLES

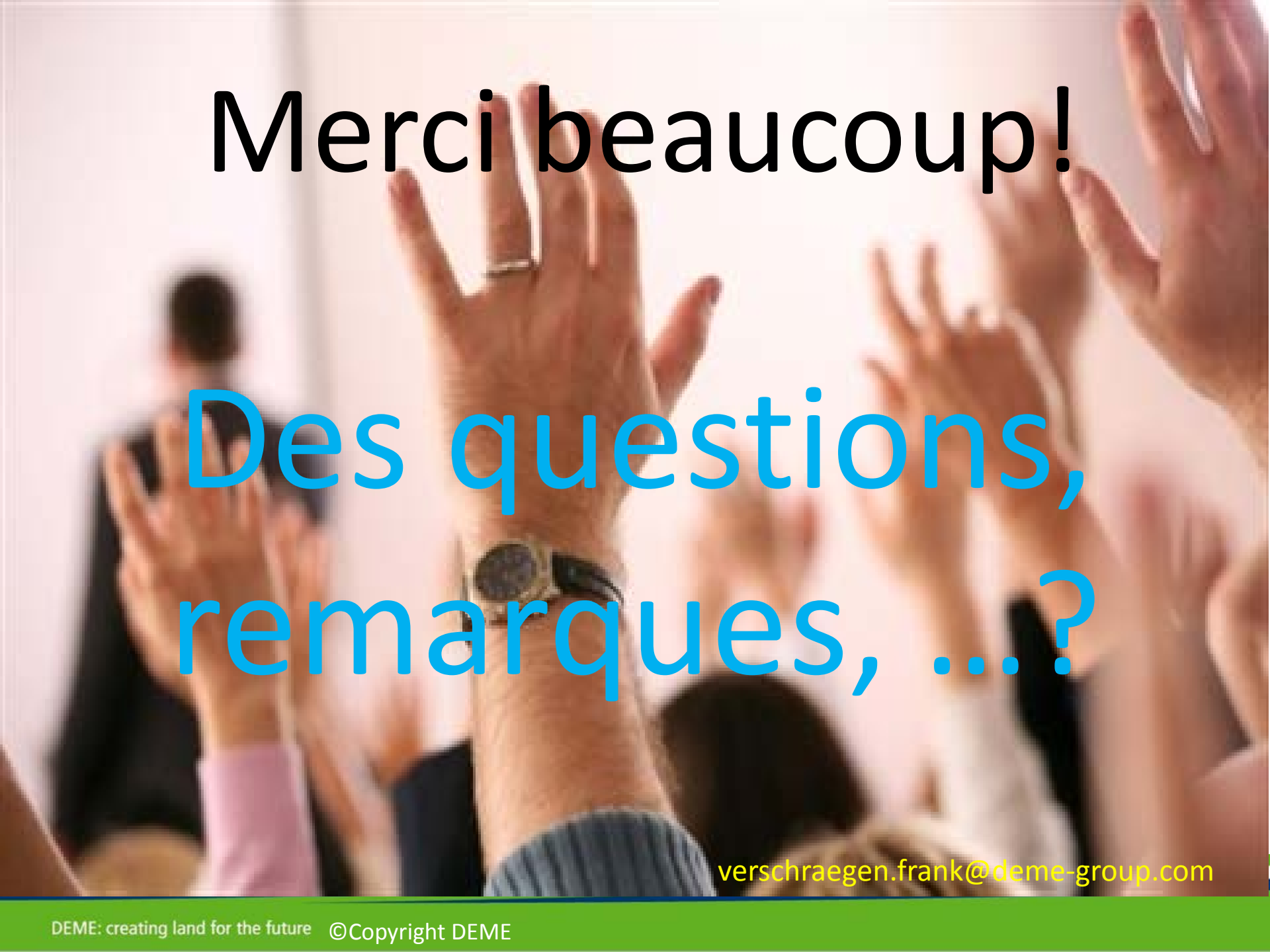


AQUACULTURE



NAVIGATION ESTUAIRE





Merci beaucoup!

Des questions, remarques, ...?

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