FRANCE ENERGIES MARINES

2C NOW webinar

Industry Insights

Cédric Dall’Ozzo (EDF Renouvelables)

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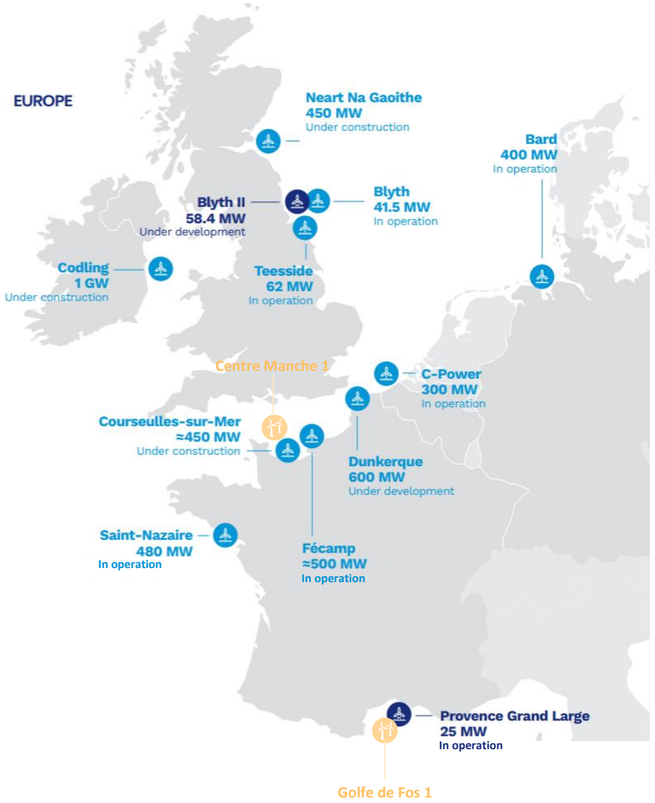
FRANCE ENERGIES MARINES

EDF renouvelables

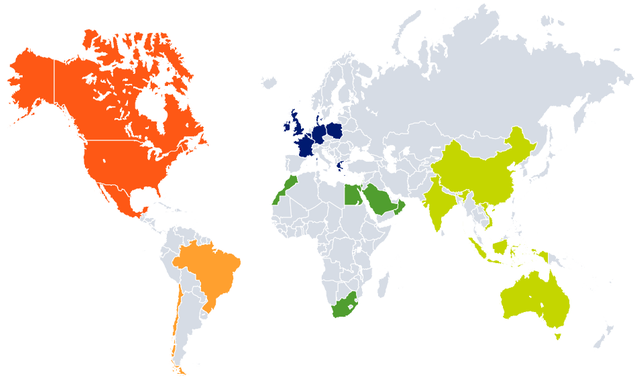


Development

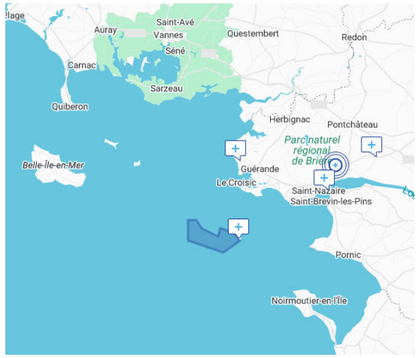
Engineering & Construction

Asset management

Operation-maintenance



5,022	12.8 G.W.	66 %	32 %	2 %
collaborators	nets installed in the world	wind power	solar	storage



Saint-Nazaire (2022)
80 GE Haliade 6MW

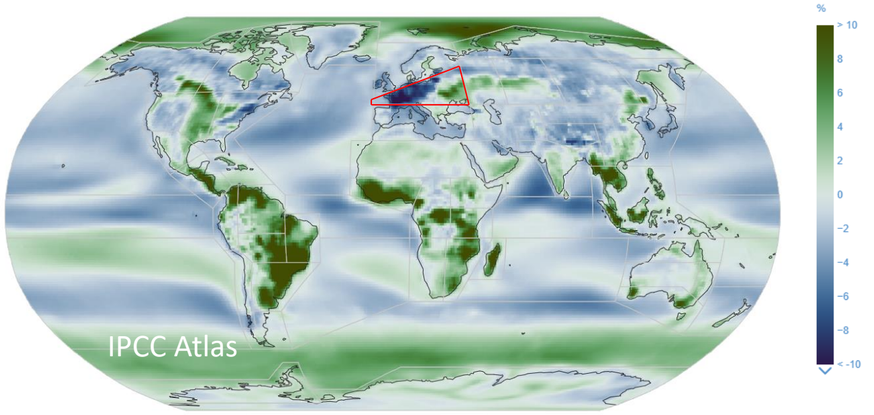
Energy yield assessment and design

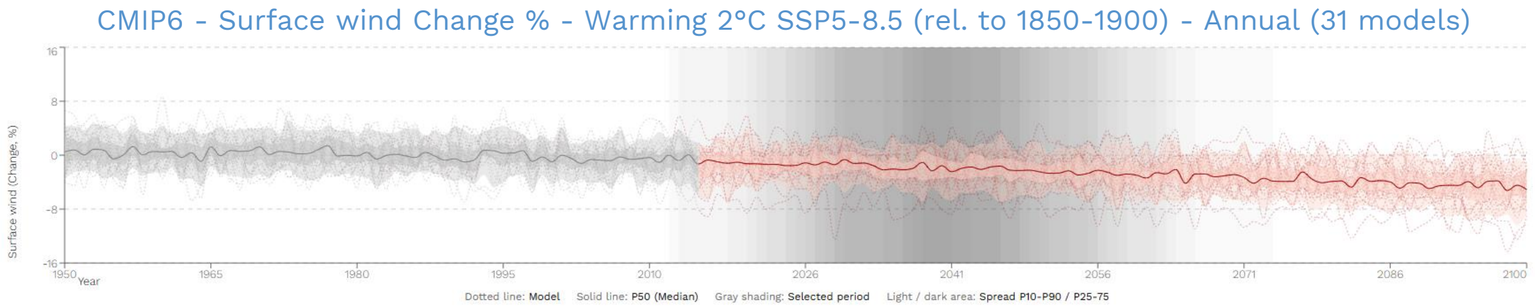
➡ Generally, energy yield assessment and design (Wind turbines + foundations) based on historic datasets without climate trend considerations

➡ Needs to understand and consider climate change impacts on different inputs required for energy yield assessment and design (onshore and offshore)

Potentially several inputs could be highly affected with important impacts

- Wind speed
- Significant wave height (Hs)
- Peak wave period (Tp)
- Sea level rise
- Extreme wind speed
- Extreme Hs, Tp
- Storm surge
- Temperature
- …





➡ In close collaboration with EDF R&D on climate change topics

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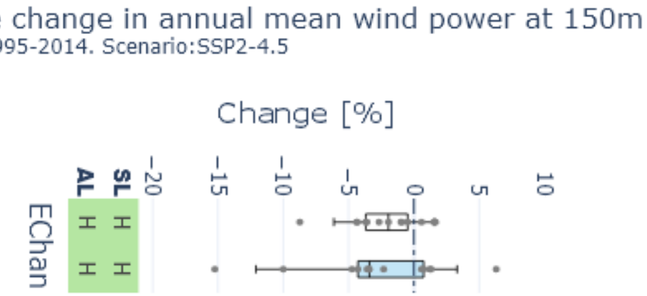
2C NOW project, a first answer regarding climate change impacts in accordance with industrial needs

- Offshore focus
- Climate trends on French coast (English Chanel, Atlantic ocean, Mediterranean sea) based on state-of-the-art CMIP6 dataset considering different climate scenarios and different models
- Downscaling process to correct climate model bias using CDF-t with CERRA reanalyses
- Selection of an important panel of climate models (13)
- Hourly downscaled dataset facilitating translation from wind resource to energy yield
- Distribution of the different results in term of average wind speed, energy yield, Hs, water level
  - Large spread on wind speed and energy yield trends

Access to state of art climate information

- DATA 2C Platform



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Still different questions regarding climate change impact assessment

- Impact of downscaling approach (CDF-t, Quantile Mapping, Machine Learning…)
- Impact of the selected reanalysis (CERRA, ERA5…)
- Definition and quantification of uncertainty
- Extreme Value Analysis (EVA)
- Impact on cyclonic events
- New parameters (wind direction, sea current…)
- Other geographies
- STANDARDS

⇨ 2 MORE