

Offshore wind development in Atlantic coast

Dr. Divya Kurthakoti

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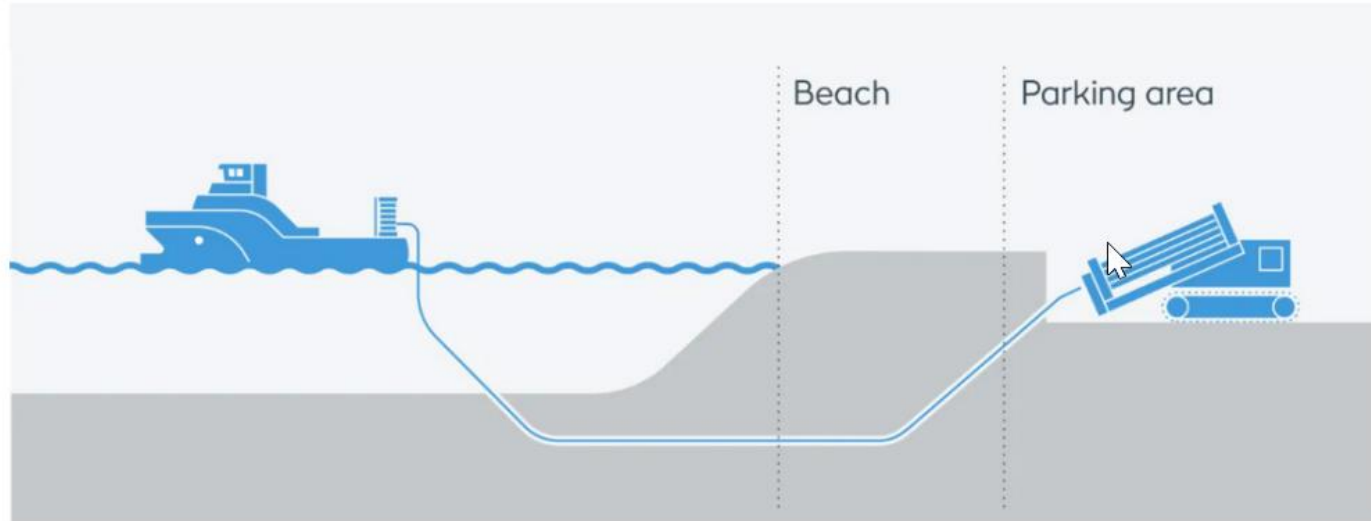
- Typical offshore wind farm layout
- Onshore works required for offshore wind farm
- An example offshore wind project in Northeast US
- Conclusion

Offshore wind farm layout



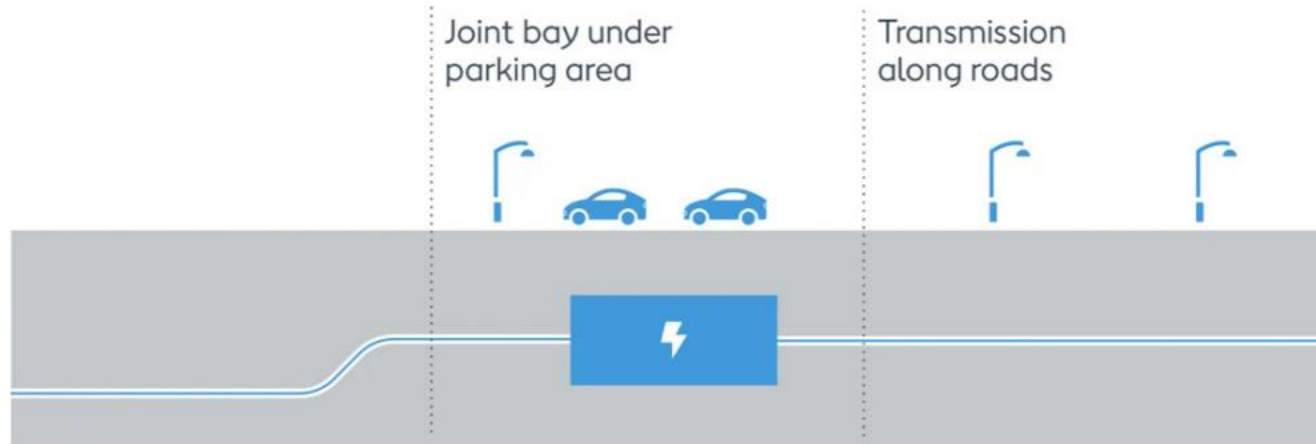
Export cable landfall

From sea to shore



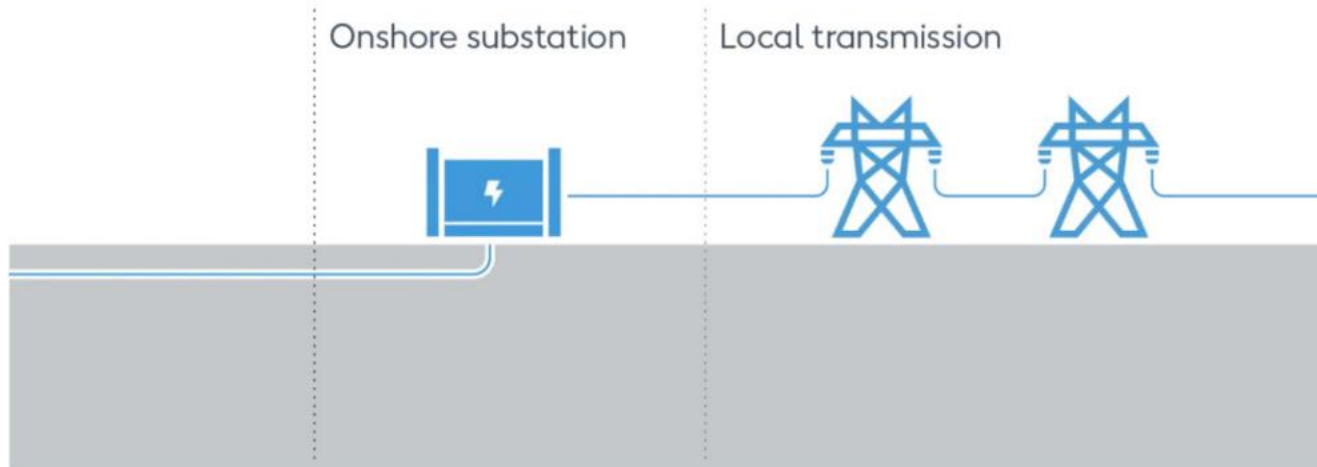
Onshore terrestrial/inland export cable connecting to cable under the beach

The transition joint bay



Onshore export cable terminating to the wind farm onshore substation Cable/transmission line connecting from onshore substation to local utility

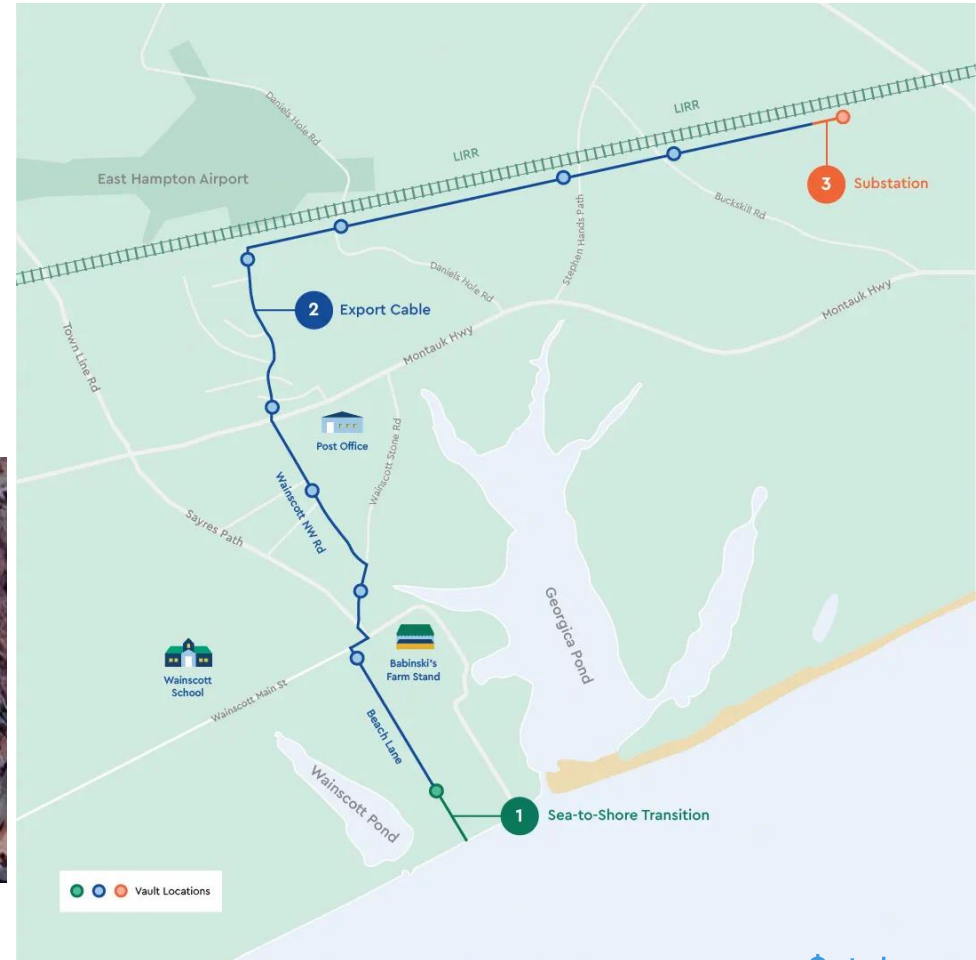
Connecting to the grid at the substation



Terrestrial works: An example offshore wind case

Typically have Onshore substation closer to the transmission system (utility/TO point of interconnection)

Onshore cable routed to onshore substation



Conclusion

- Offshore terrestrial right of way is project and design specific
- Terrestrial works include routing of export cables inland, locating onshore substation and
- Most often export cables are transmission voltage (e.g. 138kV or 230kV or 275kV) and will have to make land fall and go inland.
- Export cable distance depends on the location of transmission or utility point of interconnection and ability to permit/secure right of way
- Onshore substation is required for terminating the inland export cable and also for one of the two reasons
 - For HVAC export cables: AC transformer and switchyard for scaling to utility connection voltage. It also includes any balance of plant equipment to meet grid codes or utility interconnection requirements
 - For HVDC export cables: HVDC inverter station and switchgear equipment are all located in the onshore substation
- Connection from onshore substation to the utility can be done either via a cable or transmission line (most often decided by local utility preferences and any right of way constraints)

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Thank You

Contact: dkuch@orsted.com

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