Cost of Energy for Wind Turbines With Different Drive Train Types

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Introduction and Drivetrains

- How do you choose between different competing wind turbine models when planning an offshore wind farm?
  - Many turbine types available
  - Drive train biggest differentiator
  - This work shows how the drive train choice effects the CoE of offshore wind farms
  - 3 hypothetical Sites located at different distances from shore
  - Each site has one of four different drive train types

Method

1. Obtain or create required models
2. Secure empirical data
3. Adjust empirical data. REMM, Cost, Power Curve
4. Combine all models and input data to work out CoE for 4 drive train types
5. Compare results and draw conclusions

Method, CoE Equation, Models and Hypothetical Sites

2. CoE Equation & Input Models Used:

- Initial Capital costs: Turbine costs, BoS, operation and maintenance costs, Other Capital Costs (transporting, decommissioning, etc.)
- O&M costs: include staff costs, repair costs and transport costs

Results and Conclusions

Energy production for each drive train type at each site

BoP costs for each drive train type at 50km site

Other capital costs for each drive train type at 50km site

O&M costs for each drive train type at 50km site

References

[1] Promotional Materials from Vesta and Siemens  