Collegiate Wind Competition Offshore Development

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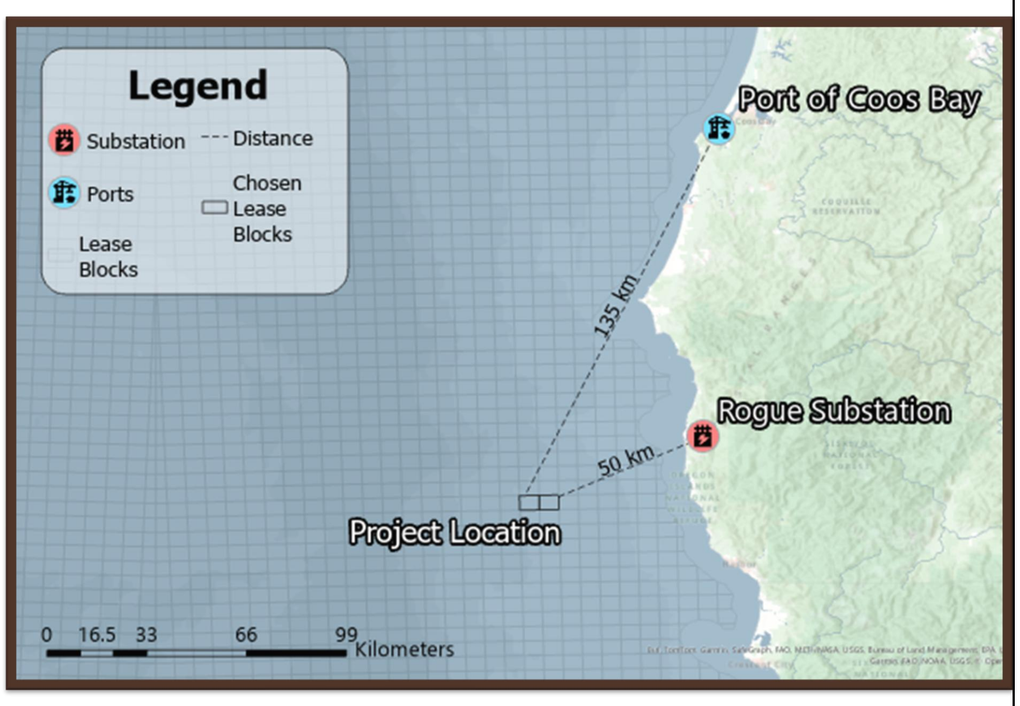
Goal: Investigate offshore wind farm opportunities off the coast of Oregon and create a development plan with a 30-year project economic assessment.

Design Requirements

- Lease area must consider wind resource, bathymetry, transportation access conflicting human use, impacts to migratory species, and permitting requirements
- Turbine features should consider rated power, wind speed, hub height, and rotor diameter
- Farm features will consider turbine count and layout, transmission design and port infrastructure
- Determine the levelized cost of energy based on the project life of 30-year, initial capital cost, annual operating expenses and energy production, predicted market conditions, financing plans and possible incentives



Current Design

- 525 MW capacity wind farm
- 2 lease blocks
- 35 Vestas V236 15MW turbines
- Semisubmersible platform with drag embedded anchors
- Port of Coos Bay used for O&M, S&I, and M
- Rogue Substation will be the interconnection site

Survey Vessel:
R/V Shackleford

Towing/installation Vessel:
Charybdis

Cabling Vessel:
Maersk Connector

Operations Service Vessel:
IWS Skywalker

Current Project Parameters

Parameter	Units	Value	Parameter	Units	Value
CapEx (Gross)	$ (Millions)	2,326	Net Capacity Factor	%	48%
CapEx (Unit)	$/kW	4,431	Project Design Life	Years	30
Turbine Components	%	29.36%	Tax Rate	%	27.0%
Balance of System	%	62.32%	Inflation Rate	%/yr	2.5%
Soft Costs	%	8.32%	Debt Fraction	%	73.0%
OpEx (Gross)	$ (Millions)/yr	62.4	Debt Interest Rate	%/yr	7.0%
OpEx (Unit)	$/kW/yr	119	Minimum Return on Equity	%	10.5%
Gross Expenditure	$ (Millions)	4,198	LCOE	$/MWh	92.59