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Description:	By: Walter Musial of NREL
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California Offshore Wind Research Needs

Next-Generation Wind Energy Technologies and their Environmental Implications

Walt Musial
Principal Engineer, Offshore Wind Lead
National Renewable Energy Laboratory

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California Energy Commission
1516 Ninth Street
1st Floor, Imbrecht Hearing Room
Sacramento, California

Primary Research Question

- What research is needed, e.g. environmental and technological, to set the stage for future development and implementation of offshore wind energy in California?

Wind Plant Technology Needs

- Deepwater Mooring Systems – design solutions to minimize foot prints, expedite anchor placements, and avoid use conflicts in water depths between 500-m and 1000-m.

- Floating Platform Scaling – platforms with favorably cost scaling as turbine capacity increases; capturing cost benefits for larger turbines

- Floating array power system innovation – optimized dynamic cabling and power delivery systems with floating substations

- Control of large floating arrays and system control optimization – sensors, actuators, and algorithms

- Optimized turbines - Purpose-built floating offshore wind turbines at 10 MW + capacity

Siting and Supply Chain Technology Needs

- Comprehensive Wind Resource Assessment and Validation (hub height)
- Campaigns to measure offshore metocean conditions for resource validation
- Technology solutions to reduce use conflicts during construction and operation
- Floating wind turbine installation strategies to reduce cost and utilize local infrastructure
- Innovations to develop alternative vessels to avoid Jones Act conflicts
- High Sea-State Crew Transfer Solutions
- State-wide coastal grid access and expansion study
- Detailed ports and harbor engineering upgrade study for specific locations – future anticipating technology advancements
- Supply chain technology development to accelerate local infrastructure – large scale fabrication, dry docks, land and sea upgrades

Thank you for your attention

Walt Musial
Principal Engineer
Offshore Wind Manager
National Renewable Energy Laboratory
walter.musial@nrel.gov

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