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AGENDA

Next-Generation Wind Energy Technologies and their Environmental Implications



October 25, 2018
1:00 p.m.

CALIFORNIA ENERGY COMMISSION
1516 Ninth Street
1st Floor, Imbrecht Hearing Room
Sacramento, California

Join the California Energy Commission and experts in wind energy for a discussion on research needs and opportunities for developing and deploying next-generation wind energy technology in California.

Welcome, Housekeeping, and Outline (Rizaldo Aldas, Energy Commission)

Introduction and purpose of the workshop

Overview of Research Initiative for Wind Energy R&D in the 2018-2020 EPIC Program (Silvia Palma-Rojas, Energy Commission)

Energy Commission staff will provide an overview of Strategic Initiative 4.2.1 “Advanced Manufacturing and Installation Approach for Utility-Scale Land-Based Wind Turbine Components” and Strategic Initiative 4.2.2 “Real-Time Remote Monitoring System for Offshore and Land-Based Wind Technologies” identified in the 2018-2020 EPIC Triennial Investment Plan to address the engineering and logistics challenges in developing next-generation wind energy technology. Additionally, Strategic Initiative 7.3.1 “Find Environmental and Land Use Solutions to Facilitate the Transition to a Decarbonized Electricity System” called for investigating the risks to sensitive species and habitats from renewable energy projects in California, including offshore wind.

DOE Wind Energy Technology Office’s Research and Development efforts on Wind Energy Technologies (Michael Derby, DOE WETO)

The U.S. Department of Energy’s Wind Energy Technologies Office supports research and development to improve the performance, lower the costs, and accelerate the deployment of wind power technologies. WETO staff will provide an overview of their research areas and highlight some current projects addressing the challenges to increase the performance and reliability of next-generation wind technologies.

Panel Discussion on Research Needs and Opportunities for Next-Generation Wind Energy Technologies (Moderator: Prof. C.P. van Dam, University of California, Davis)

Panelists will discuss state of the art and key challenges associated with the design, manufacturing, and deployment of larger rotors and blades, taller land-based wind towers, and real-time monitoring control systems for offshore wind energy projects. Experts will provide a brief overview of the existing research landscape and research needs, and explore metrics that ensure the successful development of next-generation wind technologies.

Jason Cotrell, RCAM Technologies

Kevin Smith, DNV GL

Mo Li, University of California, Irvine

Walter Musial, National Renewable Energy Laboratory

Questions:

1. According to the Market Report 2017, there are neither new nor existing wind turbine manufacturing facilities located in California. How critical is it and are there opportunities for advanced manufacturing technology in California? How can the evolution in next generation wind energy technologies support the advancement of manufacturing in the state?
2. What are the research needs to enable on-site manufacturing or hybrid solutions for wind energy technologies? What are the main on-site manufacturing challenges in California and what are needed to address those challenges?
3. What are the research needs (e.g. in the area of materials science) to make the next-generation of wind energy technologies, such as super-sized blades and concrete or hybrid wind towers, feasible?
4. Are the environmental life cycle aspects of the new composite materials and technology innovation being evaluated in the design and development of next-generation land-based and offshore wind technology?
5. What is the current state-of-the art (e.g. use of drones and robots) for maintenance and monitoring of wind energy farms? Are there any further technological developments needed and are any of the currently available cutting-edge approaches applicable for use in any future offshore wind farms? What are the research needs to encourage proactive maintenance while reducing operational and maintenance costs and help future offshore wind projects have a competitive levelized cost of energy?
6. What research are needed, e.g. environmental and technological, to set the stage for future development and implementation of offshore wind energy in California?

Public Comments

Overview on the Risk to Sensitive Species and Habitats from Offshore Wind Energy Projects in California (Moderator: David Stoms, Energy Commission)

Speakers will provide an overview of the state of the science of environmental research and the remaining gaps and research needs to advance the understanding of the environmental impacts of offshore wind energy projects in California and find solutions to facilitate the deployment of wind energy farms.

Jeremy Potter, Bureau of Ocean Energy Management

Marine Environmental Research to Support the Transition to Renewable Energy: Review of the Science and Remaining Information Needs

Scott Terrill, H. T. Harvey & Associates

Avian considerations and offshore wind in the California Current

Chris Potter, Ocean Protection Council

Improving Access to Information for Marine Renewable Energy Siting, Planning, and Regulatory Processes

Questions:

1. Are there topics where EPIC could add significant value and not unnecessarily duplicate research being done by others? What are the topic(s) and what research would be needed to have a measurable impact?

2. Are the barriers from knowledge gaps primarily due to:
 - a. Lack of environmental observation data?
 - b. Need for improved risk assessment methods?
 - c. Need for improved environmental monitoring and surveying technologies?
 - d. Other?

Public Comments

Adjourn