

BOEM Offshore Renewable Energy Workshop

Hyatt Regency Sacramento

1209 L Street

Sacramento California 95814

July 29-30, 2014

Sponsor: Bureau of Ocean Energy Management

Training Coordinator: National Renewable Energy Laboratory

Day 1 – July 29

Offshore Wind Focus

Call-in number: 866-692-4538 Participant passcode: 5322611

Webinar URL: <https://mmancusa.webex.com/mmancusa/j.php?MTID=md16520c9b005b655d90c3e8cadf56394>

Registration and Coffee		8:00am
Opening Session – Offshore Wind	Walt Musial - NREL	8:30am
<ul style="list-style-type: none"> • Welcome and Opening Remarks • BOEM Introductory Remarks • Meeting Goals and Objectives (NREL) 		
Keynote Address from Ken Alex – Senior Policy Advisor to Governor Edmund G. Brown (invited)		8:40am
BOEM - Offshore Renewable Energy Program	Jean Thurston - BOEM	8:55am
<ul style="list-style-type: none"> • BOEM OCS Renewable Energy Program Overview <ul style="list-style-type: none"> – Energy Policy Act of 2005 – OCS Renewable Energy Regulatory Framework (30 CFR 585) – BOEM State Intergovernmental Renewable Energy Task Forces in the Pacific Region – Outlook for OCS Renewable Energy Activities 		
DOE - Offshore Wind and Marine Hydrokinetics (MHK) Overview	Alana Duerr - DOE	9:25am
<ul style="list-style-type: none"> • DOE National Offshore Renewable Energy Strategies • Review of DOE Projects and Programs 		
BREAK		9:45am
Wind Technology Overview	Ian Baring Gould – NREL	10:00am
<ul style="list-style-type: none"> • Energy in the Wind • How to Judge a Good Wind Resource Potential • Wind Turbine 101 – How do wind turbines work? 		
Offshore Wind Overview	Walt Musial - NREL	10:30am
<ul style="list-style-type: none"> • What do Offshore Wind Turbines Look Like? • Industry Status • Modern multi-Megawatt Offshore Wind Turbines • Floating Wind Turbines <ul style="list-style-type: none"> – Why go floating? Possible Benefits 		

- Resource Potential in Deep Water
- Industry Status
- Support Structure Types (TLP, Semi, Spar)
- Moorings and Anchors

Discussion - Question and Answers

Offshore Wind Power Plants Wakes and Arrays

Walt Musial –NREL

11:15am

- Effects of Wind Turbine Wakes
- Wind Resource Assessment and Area Delineation

Project Development Phases

- Standards and Compliance
- Phases of Offshore Wind Plant Development

Discussion - Question and Answers

Lunch on your own (1 .5 Hour) 12:00pm

Offshore Wind and MHK Electrical Systems

Ian Baring Gould - NREL

1:30pm

- Plant Layouts / Electrical Collector Systems and Substations
- Transmission to Shore / Export Cables
- Interconnection with Land-Based Substation
- How does the power grid handle wind resource variability?

California Ocean Renewable Energy Vision Panel

Walt Musial - NREL

2:00pm

- Jennifer Lucchesi – Executive Officer, California State Lands Commission
- Janea Scott – Commissioner, California Energy Commission, (invited)
- Case van Dam – Director, California Wind Energy Collaborative
- Dr. Sam Blakeslee – Director, Institute for Advanced Technology and Public Policy, California Polytechnic Institute, San Luis Obispo

Discussion - Question and Answers

Break 3:30pm

Offshore Wind Technology and Deployment Panel

Ian Baring-Gould - NREL

3:50pm

- James Lanard – Offshore Wind Development Coalition (former Managing Director)
- Michael Dvorak – Sailor’s Energy
- Kevin Bannister – Principle Power Inc.
- Trine Ingebjørg Ulla – Statoil
- Andrea Copping – Pacific Northwest National Laboratories (invited)

Open Topic Discussion

5:20pm

Wrap up

Walt Musial/ Jean Thurston

5:35pm

Day 2 – July 30 Marine Hydrokinetic Focus

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Registration and Coffee **8:00am**

Opening Session – MHK **Walt Musial/Jean Thurston** **8:30am**

- Opening Remarks and Key Messages from Day 1
- Regulatory Opening Remarks (BOEM)
- Meeting Goals and Objectives (NREL)

FERC Regulatory Perspective (via remote access) **Chelsea Hudock and Steven Bowler – FERC** **8:45am**

- FERC Jurisdiction on the OCS
- Types of Authorizations
- Licensing Process
- Key Concepts and Implementation of the BOEM/FERC Guidelines

Environmental Lessons -Terrestrial Wind and MHK Research **Robert Thresher - NREL** **9:15am**

Offshore Wind Impacts, Competing Uses, and Economic Development **Ian Baring-Gould – NREL** **10:00am**

Break **10:20am**

Ocean Wave Energy Technology **Robert Thresher - NREL** **10:45am**

- Marine Energy Resource Estimates
- Ocean Wave Technology - Present & Future Potential
- Wakes and Arrays (Alternative Use Impacts, e.g. Fishing)
- Modeling and Analysis – Design Codes
- Highlight in Electrical Aspects Difference from Offshore Wind
- International Markets/Projects
- U.S. Projects Being Developed
- Projected Cost of Energy
- Device Testing and the National Marine Energy Centers
- The Technology Readiness Level Development Path

Discussion - Question and Answers

International Standards for Marine Energy **Jonathan Colby – Verdant Power** **11:45am**

Discussion - Question and Answers

Lunch on your own **12:15pm**

Offshore Wind and Marine Energy Market Overview **Ian Baring-Gould- NREL** **1:45pm**

- Leveraging Land-based Markets
- International Markets

- Cost of Energy
- Offshore Energy Policy Issues
- Electricity Prices – Hurdle Price
- Electricity Market Opportunities

Discussion - Question and Answers

Break **2:30pm**

Marine Energy Technology and Deployment Panel **Jonathan Colby - Verdant Power** **3:00pm**

- Jarett Goldsmith - DNV-GL
- Luis Vega – University of Hawaii
- Bill Toman – Pacific Marine Renewables
- Belinda Batten – Northwest National Marine Renewable Energy Center
- Alex Fleming – Ecomerit
- Paul Grist – Archon Energy (invited)

Open Topic Discussion **5:00pm**

Wrap up **Walt Musial/ Jean Thurston** **5:15pm**