

Safety Management System (SMS) Considerations for Renewable Energy Projects on the OCS

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*“To promote safety, protect the environment and
conserve resources offshore through vigorous
regulatory oversight and enforcement.”*



Outline

- SMS requirement
- Anticipated risks
- SMS guidance
- Role of standards in the SMS
- Need for industry-led standards development / expansions

Regulations: 30 CFR Part 585, Subpart H

Environmental / Safety Mgt, Inspections, and Facility Assessments

- § 585.810
 - What must be included in a Safety Management System?
- § 585.811
 - When must the Safety Management System be followed?
- § 585.820
 - DOI will inspect OCS facilities and any vessels engaged in authorized activities
- § 585.821
 - DOI will conduct scheduled and unscheduled inspections
- § 585.824
 - Annual self-inspection plan and reporting requirements

Safety Management System (SMS) Requirements

30 CFR 585.810-811

- SMS is required by all entities performing OCS renewable energy activities (*definition of “You”*)
 - lessee,
 - operator (or designated operator),
 - ROW (right of way) grant holder,
 - RUE (right of use and easement) grant holder,
 - alternate use RUE grant holder,
 - designated agents of any of these, and
 - contractors and subcontractors to any of these entities
- Primary SMS goal is to ensure safety on or near your facilities
- SMS must be “fully functional” when operations begin

OCS Renewable Energy Risks

Examples

- confined space
- contractor management
- corrosion monitoring and management
- drone risk (UAV) (underwater and aerial)
- dropped objects
- electrical safety
- emergency response (especially regarding marine coordination and coordination among first responders such as U.S. Coast Guard)
- fire hazards, maintenance of fire extinguishers and/or fire extinguishing systems, inspection frequency
- personnel fitness to work
- hazardous gas emissions
- hot work
- incident reporting
- lifting and crane operations (including multi-crane and critical lifts)
- man overboard

OCS Renewable Energy Risks

Examples

- medical evacuation equipment and procedures
- medical facility requirements (what staff capabilities are needed and where)
- oil spills
- permit-to-work activities (for hazardous activities such as hot work or working at heights)
- personal safety (including ergonomic hazards; slip, trip, and fall hazards; and personal protective equipment (PPE) controls)
- personnel communication and coordination
- physical security of the asset (as well as North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection (CIP) cybersecurity)
- service lifts and inspection requirements
- simultaneous operations
- subsea anomalies (e.g., unexploded ordnances)

OCS Renewable Energy Risks

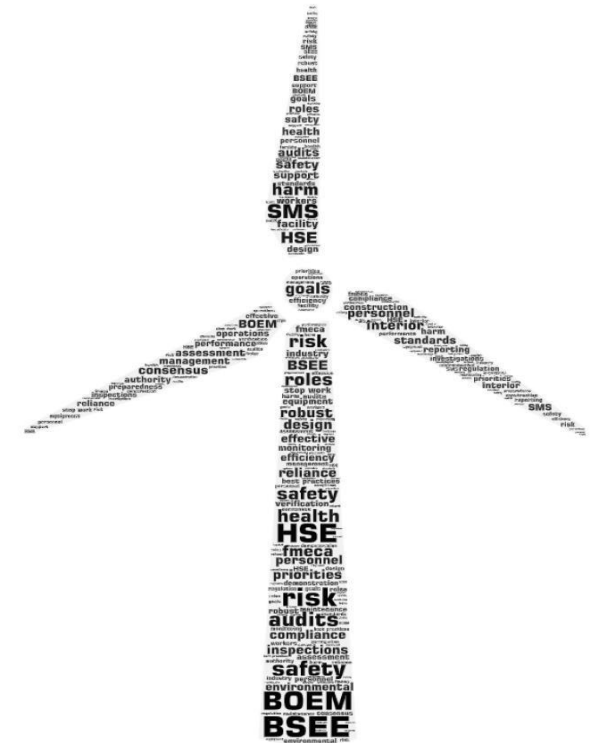
Examples

- tool and equipment ratings
- towing
- vessel encroachment and marine coordination (including vessel collisions and allisions)
- vessel transfer
- weather and severe weather
- working alone including communication and emergency response mechanisms
- working at heights, fall protection, fall rescue
- working under load

The SMS defines how “you” will ensure safety

DOI HSE/SMS Guidance under development

- DOI Regulatory Authority
- Risks and Performance-based Regulation
- SMS Requirements and Guidance
- Role and Availability of Standards
- Demonstrating a Functional SMS
- Monitoring and Reporting



HEALTH, SAFETY AND ENVIRONMENTAL (HSE) MANAGEMENT

GUIDANCE FOR RENEWABLE ENERGY COMPANIES

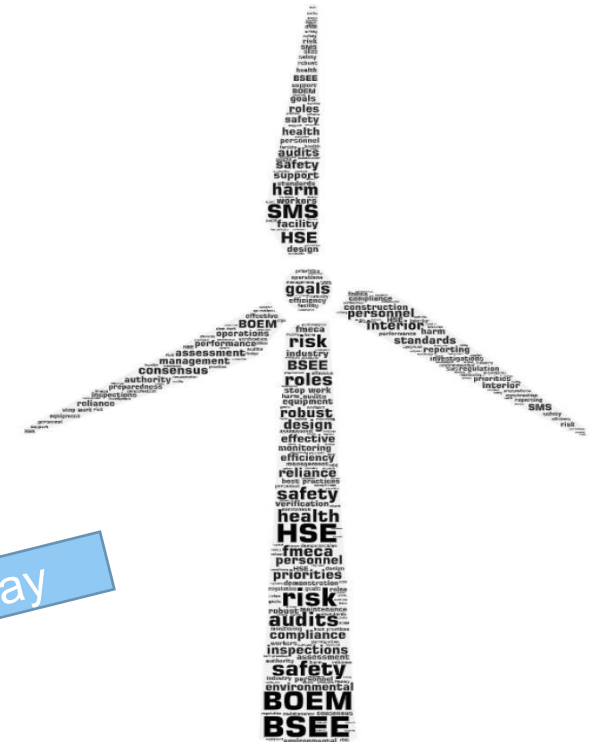
US DEPARTMENT OF THE INTERIOR



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Standards to be considered / adapted within the SMS

Consensus-based preferred over home-grown approaches

- One standard is incorporated by reference in the 585 regs
 - API RP 2A on Fixed Offshore Platforms
- Other standard categories to be considered
 - Design of an SMS Framework
 - Design and Operation of Wind Turbines
 - Lifting and Dropped Objects
 - Electrical Safety
 - Fitness to Work
 - Simultaneous Operations
 - Human Factors Engineering
 - Prevention Through Design
 - Managing Asset Design and Integrity

Three expectations from adopting standards within SMS

... each will be monitored by DOI/BSEE differently

- Design out the risk
 - Primary oversight mechanism: **Certified Verification Agent (CVA)**

- Design in safety components
 - Primary oversight mechanism: self and BSEE-led **Inspections**

- Create and utilize safety and environmental controls
 - Primary oversight mechanism: **SMS audits** (self, 3rd-party, BSEE-led)

SMS Component Considerations

Examples

- SMS Standards
 - ISO 45001, *Occupational health and safety management systems*
 - ANSI Z10, *Occupational health and safety management systems*
 - API RP 75, *Recommended Practice for a Safety and Environmental Management System for Offshore Operations and Assets*

SMS Component Considerations

Examples

- Design Standards
 - EN 50308, *Wind Turbines – Protective Measures – Requirements for design, operation, and maintenance*
 - AWEA OCRP-2012, *Recommended Practice for Design, Deployment, and Operation of Offshore Wind Turbines in the U.S.*
 - ASME A17.8, *Standard for wind turbine tower elevators*
 - API RP 2A–WSD, *Planning, Designing, and Constructing Fixed Offshore Platforms—Working Stress Design*

SMS Component Considerations

Examples

- US Coast Guard Standards
 - *Means of Escape* (33 CFR 143.101)
 - *Personnel Landings* (33 CFR 143.105)
 - *Guards and Rails* (33 CFR 143.110)

SMS Component Considerations

Examples

- Lifting Standards
 - API RP 2D, *Operation and Maintenance of Offshore Cranes*
 - OE-GL-01 – *Guideline and Recommended Practice – Planning and Execution of WTG Lifting Operations*
 - OE-RP-01 – *Recommended Practice – Design of Lifting, Transport, Storage and Accessory Equipment*
 - OE-RP-02 – *Recommended Practice – Vessel Access Aligned Interfaces*
 - DROPS: *Dropped Objects Prevention Scheme,*

SMS Component Considerations

Examples

- Electric Standards
 - National Fire Protection Association (NFPA) 70 series
 - OSHA 29 CFR Parts 1910 and 1926 (*Lock Out Tag Out [LOTO]*)
 - Renewable UK Wind Turbine Safety Rules

SMS Component Considerations

Examples

- Miscellaneous
 - International Marine Contractors Association (IMCA) M203, Guidance on Simultaneous Operations (SIMOPS)
 - Renewable UK RUK13-001-6, Offshore Wind and Marine Energy Health and Safety Guidelines, Section A.10
 - ASTM22 F1166-07, *Standard Practice for Human Engineering Design for Marine Systems, Equipment, and Facilities*
 - ANSI/ASSE Z590.3-2011, *Prevention Through Design Guidelines for Addressing Occupational Hazards and Risks in Design and Redesign Processes*

Conclusions

The path ahead

- Experience from the oil and gas sector can influence the safety of US OCS renewable energy operations
- International experience and standards gain primacy when US standards are unavailable or lacking
- DOI/BSEE as the regulator will push for safest applications
- Future presentations... more details on the DOI HSE Guidelines



Questions?

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