

Project Number:	650
Category:	Inspection/Safety
Date:	June 2010
Subject:	Assess/Develop Inspection Methodologies for Offshore Wind Turbine Facilities
Performing Activity:	Energo Engineering, Inc.
Principal Investigator:	R. Sheppard
Contracting Agency:	Bureau of Safety and Environmental Enforcement
Summary:	The objective of this project was to develop a supplement to the existing offshore wind turbine facility inspection guidelines (i.e., TAR 627), which include recommended inspection techniques, acceptable technologies from a safety and effectiveness standpoint, and recommended follow-up activities in the event of identified anomalies.
Key Findings:	<ul style="list-style-type: none"> • During the conduct of TAP 627, a number of technological and practical challenges to assessing the condition of OWTs were identified, such as performing a close visual inspection of wind turbine blades in situ and identifying the extent and cause of structural inclination. • To adequately gauge the status of the blade, a visual and nondestructive examination is required. • The use of suspended platforms can provide a robust means to inspect blades quickly, thoroughly, and in a wider range of wind conditions. These are not exotic access systems and are likely to be readily adapted from land-based to offshore use. • Although access will always be a consideration for inspection of offshore wind turbine facility blades, there are a number of options for rope or platform access that allow detailed inspections to be carried out in a relatively safe environment. This capability is currently present within the industry. • Lower-tech or proven solutions can provide reliable and repeatable inclination measurement data; for example, the use of photographic evidence, bubble levels, or trim cubes (electronic sensors used on ROVs to measure inclination). • It is also possible that standard biaxial inclinometers could be permanently mounted in the nacelle and remotely monitored.
Recommendations:	<ul style="list-style-type: none"> • Develop a revised inspection guidelines/inspection checklist
Subsequent Studies/Activities:	<ul style="list-style-type: none"> • Results of this study coupled with TAP 627 could form the basis for structural inspection requirements in future rulemaking.
Report Link:	AA : Offshore Wind Turbine Inspection Refinements, June 2010, by Robert Sheppard and Frank Puskar, Energo Engineering, Inc., Houston, TX

